



WINTER 2024

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# PRESIDENT'S MESSAGE



**Shirley Clark,**

2023-2024 EWRI President

48. It was a great day to talk climate, data, and engineering!

This new program promotes the development and use of actionable climate data. Sitting with two of my ASCE colleagues, Don Scott of the Structural Engineering Institute (SEI) and Chair of the [ASCE 7-28](#) committee, and Dr. Norma Jean Mattei, president of the Coasts, Oceans, Ports, Rivers Institute (COPRI), we talked with the Deputy Secretary of Commerce Don Graves and Dr. Rick Spinrad, the Administrator of NOAA. We were joined by the Retail Industry Leaders Association and the Reinsurance Association of America. We discussed the priority needs for climate data to support our standards and Manuals of Practice and we heard about their plans to provide better service and data access to their clients, such as the engineering and design community. And this is only the start of an ongoing dialogue among these great organizations – all of whom are driven by the desire to have a climate resilient future. We all had stories of climate-related disasters and the impacts on the affected people and businesses.

This is the next step in a longer process. We started this partnership several years ago with listening sessions where EWRI members met with NOAA scientists to discuss our needs and their timelines. While much of this has been driven by ASCE 7-28 needs for climate, EWRI was well represented in these discussions. Approximately a year ago, ASCE and NOAA signed a Memorandum of Understanding (MOU). The guiding principles of that MOU are that ASCE will help identify the needs of the civil engineering community regarding NOAA products and assist in communicating data products and services to the ASCE community. We will incorporate these

new products into updates of and new guidance for our community as they design the vertical and horizontal infrastructure of the 21st century. In return, NOAA will invite ASCE to the table early to provide input on the data and modeling priorities as they are being developed, and working with NOAA to find the best way to deliver that information to the engineering and design community.

In addition to this event and the listening sessions, we continue to have many NOAA scientists and engineers as speakers at our conferences. In 2022, Ben DeAngelo, Deputy Director of the Climate Program Office, kicked off this deepening partnership with his keynote address entitled “Utilizing Our Best Available Information for Climate-Ready Infrastructure” at the EWRI Congress in Atlanta. In January 2023, Ko Barrett, NOAA’s Senior Advisor for Climate, keynoted our first international hybrid conference, the 11th International Perspectives on Water and the Environment Conference held in Dhaka, Bangladesh with panelists broadcasting from both Bangladesh and the US. Just this past November, Dr. Spinrad was a keynote speaker at the new ASCE conference, INSPIRE: Infrastructure Innovation & Adaptation for a Sustainable & Resilient World, which was held in November in Arlington, VA. In May, we are looking forward to welcoming Sandra Pavlovic, who is leading the NOAA Atlas 15 project, to Milwaukee to keynote this year’s EWRI Congress.

We also are holding workshops to identify needs and to develop standards and other guidance, with NOAA as one of our primary federal partners. Starting with listening sessions at the Operation & Maintenance of Stormwater Systems Conference in Wilmington and the EWRI Congress in Atlanta, through workshops at the EWRI Congress in Henderson and at the INSPIRE Conference, you are identifying the priorities for our profession so that we can build climate resilient infrastructure, especially



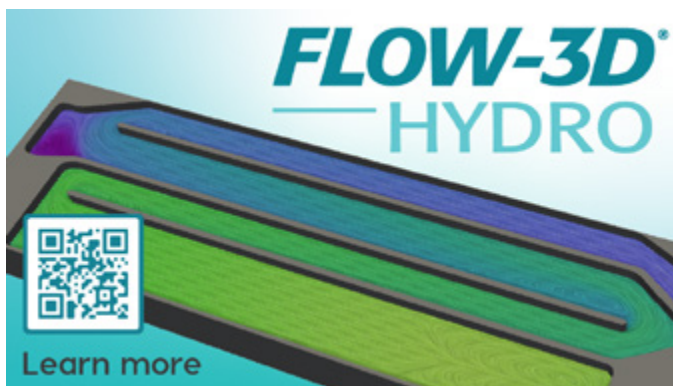
## EDITOR'S CORNER

with the influx of money from the Investment in Infrastructure and Jobs Act and the Inflation Reduction Act. We are bringing together our dedicated member volunteers to update and create standards and MOPs, to translate climate science from NOAA and from our members' own research into actionable information for our clients. We are also enhancing our partnerships with many federal agencies.

As your president, I am looking forward to these robust future collaborations! I also am thrilled to see that we, as ASCE, are breaking down the silos between the institutes and other ASCE entities. Today's panel had the leadership of EWRI, SEI and COPRI all talking about the impacts of climate on infrastructure. The ASCE-NOAA task force meetings have helped us internally to understand how each institute develops their standards and guidance. I know more about ASCE 7 and how it is developed, and also the process for incorporation into the International Building Codes. And SEI knows how we have approached standards in the water profession. We are becoming One ASCE Building a Resilient Future.

Although, with the weather, I'm not sure what season it actually is, I am looking forward to this spring of 2024. We have the [Operations and Maintenance of Stormwater Systems Conference](#) in Austin in April and of course, our [EWRI Congress](#) in Milwaukee in May. Climate will figure prominently in both. And while at OMSW, we may have a Total Eclipse of the Sun, the future is so bright that our solar shades will get many uses!

See you there!



As I was reading through this issue of Currents, I was reflecting on how multiple disciplines, and a variety of stakeholders, are often involved in solving water resources challenges. The interdisciplinarity involved in problem solving has always been of interest to me. While



**Catherine Soistman,**  
Chair, Communications Council

preparing my honors thesis in college, I studied the barriers to clean water and sanitation in poor communities across the world. There were often a variety of factors impeding progress, including technical, social, economic, and political, with each community having its own unique challenges. Within each community, solving any one of the factors alone would not solve the problem. Each challenge needed to be addressed as a whole.

After reviewing the articles and government updates in this issue of Currents, many of which involved interdisciplinary approaches, I came across a word that I was unfamiliar with – transdisciplinary. In Dr. Borah's "Article Request for a Special Collection on TMDLs", he mentions addressing climate resilience and socio-environmental systems in a transdisciplinary approach. I would love to explain to you the definition of transdisciplinary, but it seems that definitions vary. Based on a quick Google search, transdisciplinarity is often differentiated from interdisciplinarity, but the definitions do vary. I encourage you to learn more about transdisciplinarity yourself, if you are interested. Regardless of the exact definition, it is interesting to consider how society's processes for solving problems have evolved with time. Are water resources solutions transitioning from an interdisciplinary to a transdisciplinary approach? At some point in the future, will one of the readers of this issue of Currents develop a concept that transcends interdisciplinarity and transdisciplinarity? I am excited to see how our approaches to solving water resources problems continues to evolve!

If you have an article you would like to contribute for a future edition of Currents, [please reach out to me](#) or [Jennifer Jacyna](#), Senior Manager, EWRI.

# Have You Considered Becoming an EWRI Fellow?

EWRI is accepting EWRI Fellow applications for the class of 2024. An EWRI Fellow is someone who is recognized by the field, and their peers, as a leader in water resources and/or environmental engineering. To be eligible for the grade of Fellow, you must:

- Have been a dues paying member of EWRI for 10 or more years
- Have demonstrated accomplishments that have contributed significantly to the advancement or application of water resources or environmental engineering, science, and technology
- Have mentored or provided other service to students or junior engineers/scientists, or provided significant public outreach to advance the education, understanding, and advancement of engineering and science related to the EWRI mission
- Have been actively involved with EWRI through committee participation, conferences, or journals
- Submit up to 3 letters of recommendation (one of which must be from an EWRI Fellow)

[Download the application](#), and [submit it to EWRI](#) (along with supporting documents) by February 24, 2024. Please [contact EWRI](#) with any questions.

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## EWRI Vice President Election

EWRI is accepting applications and nominations for the position of ASCE-EWRI Governing Board (GB) Vice-President. Self-nominations are encouraged; the position entails a four-year term on the EWRI Board and progresses as follows:

- EWRI Vice President – FY2025 | Commences October 1, 2024
- EWRI President-Elect – FY2026 | Commences October 1, 2025
- EWRI President – FY2027 | Commences October 1, 2026
- EWRI Past President – FY2028 | Commences October 1, 2027

Nomination packets must be received at ASCE-EWRI by 5:00 PM ET, **April 5, 2024**.

The nomination packet should include the following items which may be filled out electronically and submitted by clicking on the links below:

- [Nomination Form](#) (this includes a statement of personal qualifications and vision for EWRI)
- Optional resume or CV ([emailed to EWRI](#))

More details about the process may be found in the [ASCE-EWRI Bylaws](#), Article VII, or in the most recent [ASCE Official Register](#). Please [contact EWRI](#) with any questions, or if you'd like to discuss your interest.



# ASCE Government Relations Update

Matthew McGinn, Senior Manager, Federal Government Relations

## Senate EPW holds hearing on climate change and extreme weather

A panel of experts on climate science, resilience, and energy research testified before the EPW committee. [Dr. Michael Wehner](#) with the Lawrence Berkeley National Laboratory discussed that scientific study has provided high confidence of the human impact on extreme weather conditions and the frequency of extreme weather events. He noted that the study of multiple hurricanes has concluded that human activity directly contributed to increased levels of rainfall. [Dr. Jennifer Jurado](#), Chief Resilience Officer for Broward County, FL highlighted the effects of extreme weather on Broward County, and the limits of investments in infrastructure and mitigation in the face of increasingly severe events. She also highlighted efforts Broward County was taking to address these challenges, including a county wide resilience plan with an emphasis on green infrastructure. Finally, [Paul M. Dabbar](#), former Under Secretary of Energy for Science during the Trump Administration and current Senior Research Scholar at Columbia University discussed his belief that the best way to address extreme weather challenges through innovation and deployment of new technologies and methods.

## Senate EPW holds hearing on clean water infrastructure access

On November 8th, the [Senate Environment and Public Works \(EPW\) Committee held a hearing](#) focused on access to clean water infrastructure assistance in rural and disadvantaged communities. U.S. Senators and witnesses discussed ongoing wastewater and stormwater infrastructure challenges in these communities. EPW Chairman Tom Carper (D-DE) emphasized that wastewater and stormwater systems were every bit as vital to the health and wellbeing of communities as access to drinking water. He discussed the importance of investments made under the [Infrastructure Investment and Jobs Act](#), including more than \$11 billion for clean water infrastructure, and addressing emerging contaminants through the Clean Water State Revolving Fund (SRF) program. He also noted that disadvantaged communities often struggle to compete for these funds and challenges like emerging contaminants often disproportionately affected these communities.

Testifying before the committee were witnesses from organizations representing the interest of these rural and disadvantaged communities. [Olga Morales-Pate](#), CEO of the Rural Community Assistance Partnership (RCAP) discussed the challenges faced by communities. These include utilities being forced to make difficult decisions like paying for wastewater expenses using funds for drinking water programs. She encouraged EPA to support targeted programs for smaller, rural communities, and expressed support for the creation of a grant program dedicated specifically to wastewater infrastructure in small and disadvantaged communities.

[John Byrum](#) with the Nueces River Authority in Uvalde, TX noted that most of the nation's water systems are small systems which suffer from higher rates of water quality non-compliance. Byrum cited challenges such as inadequate funding from the Clean Water SRF program or general revenue to support rural systems and the hardships faced by communities caused by requirements for applying for federal grant and finance programs. Finally, [Shellie Chard](#), Director of the Water Quality for Division for the Oklahoma Department of Environmental Quality, noted the importance of federal funding to allow small communities to compete for grants and access to new technologies which will ultimately grow their economies. She also cited ASCE's 2021 [Report Card for America's Infrastructure](#)

when highlighting the need for greater access to funds to access new technologies and improve asset management and noted that deferred investments result in higher capitalization costs in the long run and increased risk from disasters.

## **Climate resilience legislation reintroduced in both congressional chambers**

U.S. Senators Chris Coons (D-DE) and Lisa Murkowski (R-AK) and Representatives Scott Peters (D-CA) and María Salazar (R-FL) have reintroduced the [National Coordination on Adaptation and Resilience for Security \(NCARS\) Act](#). The bill's aim is to streamline the federal response to climate hazards that impact human health and well-being, critical infrastructure, and natural environments. ASCE has supported this legislation in the past and will continue to work to gain enactment. [The bill would set](#) a National Adaptation and Resilience Strategy and an Implementation Plan with federal, state, local, private sector, and nonprofit partners; establish a Chief Resilience Officer in the White House to implement the plan; create interagency working groups to streamline efforts and ensure accountability; and create a federal information hub to streamline resilience resources to communities.

## **EPA releases proposed improvements to Lead and Copper Rule**

On November 30th, the [Environmental Protection Agency \(EPA\) announced](#) its long awaited proposed improvements to the [Lead and Copper Rule](#). Under the proposed rule, EPA focuses its efforts on removing 100 percent of lead service lines nationwide within ten years. It would also make significant regulatory changes aimed at reducing the amount of lead in drinking water and protecting public safety. These changes include requiring regular updates from water utilities on lead pipe inventories, improvements to protocols for sampling at sites with lead service lines and reducing the threshold of lead content in drinking water from 15 parts per billion to 10 parts per billion.

According to EPA's latest [Drinking Water Needs Survey and Assessment](#), there are approximately 9.2 million lead service lines in the United States. It is estimated that the cost of removing all lead service lines, in accordance with the proposed rule, could be as [high as \\$30 billion over 10 years](#). In 2021, the Infrastructure Investment and Jobs Act included \$15 billion over five years through the Drinking Water State Revolving Fund for lead service line removal efforts.

EPA will open a 60-day public comment period for the proposed rule once the proposal is published in the [Federal Register](#). EPA will also [hold multiple public outreach events](#) in the coming weeks on the proposed Lead and Copper Rule Improvements, including a public webinar on December 6, 2023, as well as a public hearing on January 16, 2024. [ASCE supports](#) specific programs and funding for water quality improvements for removal of lead in water systems, prioritizing lead line, service line, and/or

plumbing removal replacement, targeting systems with the highest concentration of exceedances of lead and copper.

## **House Energy & Commerce advances WIPPES Act**

On December 8th, the House Energy & Commerce Committee marked up and passed [H.R. 2964, the Wastewater Infrastructure Pollution Prevention and Environmental Safety \(WIPPES\) Act](#). The WIPPES Act would require that personal disposable wipes have a label on packaging which says they are not to be flushed down the toilet. Flushing personal wipes down the toilet has [damaged wastewater infrastructure](#) because they do not break down, causing sewer overflows and discharge of harmful sewage into waterways.



The WIPPES Act would impose fines on manufacturers who fail to appropriately label their products. The WIPPES Act now awaits consideration by the full House of Representatives. A Senate version of the WIPPES Act ([S. 1350](#)) was also introduced in April of 2023.

[ASCE supports the WIPPES Act](#) and encourages its passage by the House.

## **House holds hearing on WRDA stakeholder priorities**

On December 13th, the House Transportation & Infrastructure [Subcommittee on Water Resources and Environment held a hearing](#) focused on stakeholder priorities for the 2024 Water Resources Development Act (WRDA). The subcommittee heard testimony from non-federal stakeholders representing state and local interests, as well as environmental and commercial stakeholders. Subcommittee Chairman David Rouzer (R-NC) emphasized the importance of passing a bipartisan, consensus WRDA every two years. Rouzer also highlighted WRDA's role in addressing challenges related to coastal nourishment and restoration, as well as flood mitigation. Subcommittee Ranking Member Grace Napolitano (D-CA) also noted the importance of ensuring the U.S. Army Corps of Engineers (USACE) has the proper tools and authority to address local water resource challenges. She also emphasized her hope that WRDA 2024 would address water supply and conservation, arguing that these issues should be a part of USACE's primary mission.

Last week, the subcommittee held its [first hearing of the 2024 House WRDA Process](#), hosting Assistant Secretary of the Army for Civil Works Michael Connor, and USACE Commanding General Scott Spellmon to discuss the Biden Administration's water resources priorities. ASCE submitted [a statement for the record](#) for last week's hearing outlining ASCE's 2024 WRDA priorities. Those priorities include reauthorization of the National Dam Safety Program, the creation of a financing program dedicated to stormwater infrastructure, and an update from USACE on progress made establishing a new National Low-Head Dam Inventory.

## **Biden administration releases National Climate Assessment**

In November, the Biden Administration released the fifth [National Climate Assessment](#), the federal government's primary report outlining the impacts of climate change, ongoing challenges, and the response to those challenges. The report, which is mandated by Congress to be updated periodically, found the effects of climate change are growing worse in every region of the country. While greenhouse gas emissions have fallen since peaking in 2007, and efforts to reduce emissions and adapt to the changing climate have increased since the last assessment in 2018, deeper worldwide cuts in net greenhouse gas emissions and accelerated adaptation are needed to avoid the continued growth of severe climate risks.

The report says extreme weather events continue to cause economic losses through infrastructure damage, disruptions in labor and public services, and decreases in property values. It highlights that the nation experiences a billion-dollar disaster every three weeks on average, while that such an event occurred on average once every four months in the 1980's. Extreme events cost the U.S. \$150 billion each year, an estimate not considering factors such as loss of life, healthcare related costs, or damage to ecosystems.

## EPA releases 2023 progress report on addressing PFAS

On December 14th, the [Environmental Protection Agency \(EPA\)](#) released its second annual progress report on the agency's efforts to address threats and challenges posed by per- and polyfluoroalkyl substances (PFAS). [The report highlights](#) EPA's accomplishments in 2023 to restrict, remediate, and research PFAS. Some of the accomplishments highlighted in the report include new finalized rules on reporting PFAS to ensure these substances are used safely, proposals to list two of the most common PFAS as hazardous substances under the Superfund law, and a proposed rule to establish the nation's first ever [national drinking water standard](#) for acceptable and safe levels of PFAS.

The report also notes EPA's distribution of nearly \$1 billion from the [Infrastructure Investment & Jobs Act](#) to address PFAS and other emerging contaminants. The law provided \$10 billion through State Revolving Fund programs and other federal drinking water and clean water programs to address PFAS and emerging contaminants.



## OPERATION & MAINTENANCE OF STORMWATER SYSTEMS CONFERENCE

April 7-10, 2024 | Austin, TX

### Register by February 7 and Save!

Program  
is  
Available!

A nighttime photograph of a city skyline with illuminated skyscrapers reflected in a body of water. A blue starburst graphic is overlaid on the left side of the image.

[omswconference.org](https://omswconference.org)





# EWRI Members Participate in Environmental and Water Resources Seminar and Study Tour in Panama

Walter Grayman, Ph.D., P.E., BC.WRE(Ret.), F.EWRI, M.ASCE

Since 1984, EWRI's International Council (and its predecessor under ASCE) has sponsored an informal biennial international seminar and study tour on water resources and the environment. The purpose of these seminars has been to bring together engineers and scientists from all over the world for presentations, discussions and technical/cultural tours on water resources and environmental management issues. The most recent seminar in this series was held in Panama City and at the Gamboa Rainforest Reserve in January 2024. The seminar was organized by the University of Wisconsin-Green Bay with co-sponsorship by EWRI and local participation by INDICASAT-AIP (Instituto de Investigaciones Científicas y Servicios de Alta Tecnología). Past seminars in this series have been held in Scotland (2018), Chile (2016), Spain (2013), China (2011), Peru (2010), Vietnam (2008), Mexico (2006), Hawaii (2004), Germany (2002), and England (2000).

The technical sessions were attended by about 75 professionals and students in water resources and environmental fields. A wide range of topics were discussed including local issues such as environmental, economic and political aspects of mining and the effects of recent droughts on the operation of the Panama Canal. A keynote presentation on the Great Lakes was given by Dr. Jack Day, founder of the seminar series 40 years ago. Other topics that were discussed included climate change, sustainability, hydrology and water quality. Technical and cultural tours included Old Panama City, the Panama Canal, and rainforest animals, birds and plants.



*Image 1: Some of the participants on a rainy birding expedition in the Gamboa Rainforest Reserve. Seminar founder, Dr. Jack Day, is in the center of the first row.*

# Brooklyn Waterworks

Tonja Koob Marking, PhD, PE, D.WRE, DFE,  
MBA, PMP, CFM, LEED AP, F.ASCE

History &  
Heritage  
Spotlight



*Image 1: Depiction of water mains being laid from the Ridgewood Reservoir, 1867*

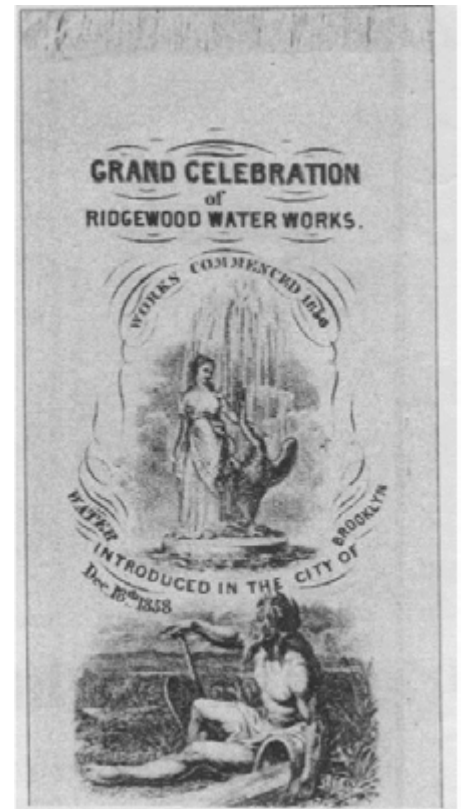
The Brooklyn Waterworks was the City of Brooklyn's primary water supply system in the second half of the nineteenth century. The water it provided allowed Brooklyn's population to grow from 96,838 in 1850 to 1.1 million in 1898, making it the third-largest city in the country by the time it joined New York City. Its water supplied the steam engines that made Brooklyn an industrial powerhouse, and that same water allowed Brooklyn to become the largest beer producing city in the United States.

The Brooklyn Waterworks's period of significance was from 1856, when construction of the Ridgewood Reservoir began, to 1959, when the Ridgewood Reservoir's basins became reserves for use in emergencies. Until then, the reservoir's three stone-faced basins collected water for distribution into all of Brooklyn for nearly a century. The Ridgewood Reservoir was officially decommissioned in 1989.

Six reservoirs were originally planned for the Brooklyn Waterworks, each named by the source of its feeding stream. The ponds were drained to remove hundreds of thousands of cubic yards of mud and rotting vegetation. Initially, water from Baisley and Simonson's ponds was thought to be a sufficient supply, but by the 1860's, the works had to be extended eastward to Hempstead Pond. Demand for water increased due to population and per capita consumption, and to demands of Brooklyn's thriving industries and breweries.

A major factor that contributed to the increased demand was the widespread use of indoor plumbing and flush toilets became more widespread in the 1860s. To meet this demand, nine additional reservoirs were added, and the system eventually reached east to Massapequa Pond (built 1888) on the Nassau and Suffolk County border.

To supplement water from the fifteen reservoirs, 25 ground water pumping stations were added. An aqueduct was built to convey the water from east to west along what is now Sunrise Highway and Conduit Avenue. Constructed with brick, it was 5 feet high and 4 feet, 10 inches wide and shaped like an inverted horseshoe, similar to the Croton Aqueduct built in 1842. The aqueduct was originally planned as an open channel but was redesigned below grade as an enhanced security measure to prevent water from freezing in the winter.



*Image 2: Newspaper ad for the grand opening of the Ridgewood Reservoir, 1858*



The topography of southern Nassau and Queens Counties was so flat that water had to be pumped through the aqueduct by steam engines at coal-fired stations located next to each reservoir. The fuel costs were substantial. In 1917, the year that Catskill water was directly connected to the Ridgewood Reservoir, the City of New York saved \$500,000 in fuel costs because Catskill water was delivered by gravity and did not require pumping. The largest and most impressive of the pumping stations was the Milburn Pumping Station. The Brooklyn aqueduct terminated at what is now the corner of Atlantic Avenue and Logan Street. There, two pumping stations, one built in 1858 and one in 1891, pumped water up to the reservoir 164 feet above via pipes that ran along Force Tube Avenue.

By 1883, the total system cost was \$11,743,393.22. The main conduit stretched 12.39 miles east of the reservoir. When the system opened in 1859 it included 126,916 miles of pipes and mains under city streets and 800 hydrants; by 1883, it had grown to 231,106 miles of pipes and 2,170 hydrants.

ASCE designated the Brooklyn Waterworks a National Historic Civil Engineering Landmark in 2021.

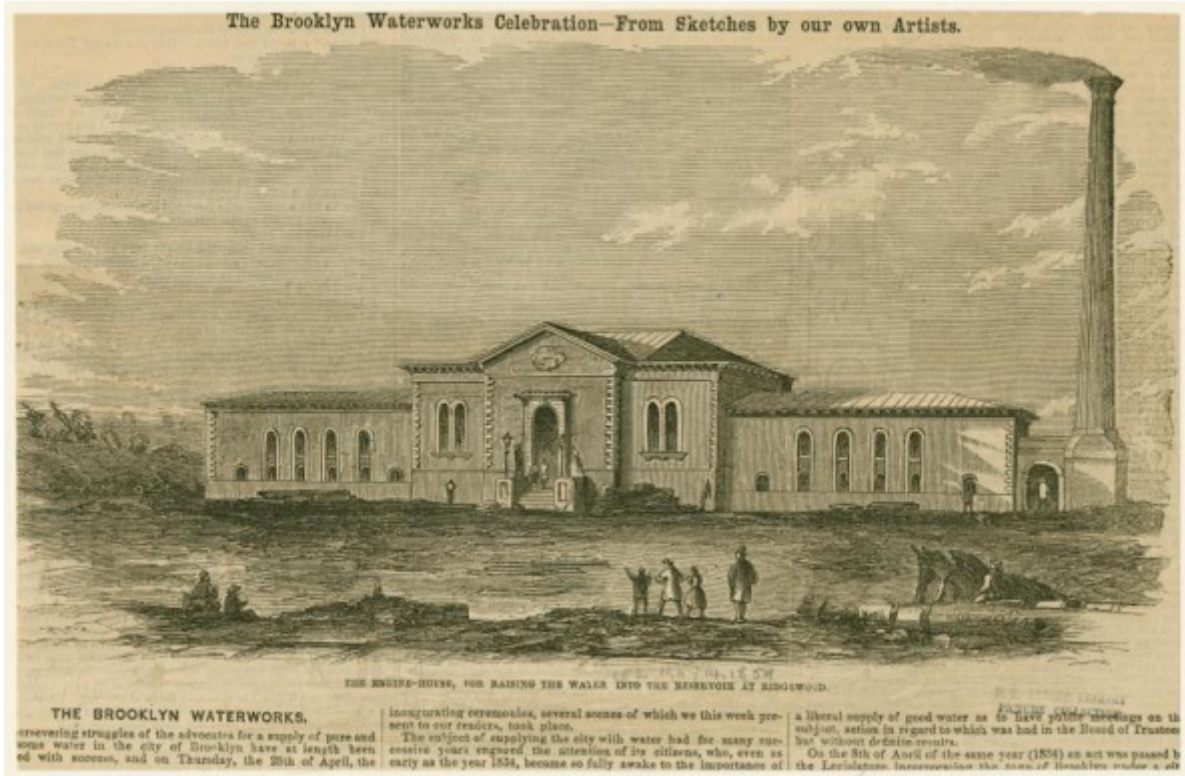


Image 3: The Ridgewood Reservoir's original pumping station, 1859

# Article Request for a Special Collection on Total Maximum Daily Load Analysis and Modeling Advances

## *Connecting Climate Resilience, Socio-Environmental Systems, and Holistic Watershed Management*

Deva K. Borah, Ph.D., P.E., F. ASCE, Chair, EWRI TMDL Analysis and Modeling Task Committee

Articles are being requested to the Journal of Environmental Engineering Special Collection on Total Maximum Daily Load Analysis and Modeling Advances – Connecting Climate Resilience, Socio-Environmental Systems, and Holistic Watershed Management that was initiated by the [EWRI TMDL Analysis and Modeling Task Committee](#). A Call for papers with background information and manuscript submission guidelines [are posted here](#). Below is a summary. The submission deadline is **June 30, 2024**.

The Total Maximum Daily Load (TMDL) process in the Clean Water Act is important for improving water quality at a watershed level because it serves as a link between water quality standards and the implementation of control actions designed to attain those standards. The EWRI Task Committee on TMDL Analysis and Modeling was formed to advance knowledge and practice in TMDL development and implementation and to fill the gap of a guidance document on selecting and applying analysis and modeling tools in TMDL development and implementation planning. It completed and published the ASCE Manual of Practice 150, “[Total Maximum Daily Load Development and Implementation: Models, Methods, and Resources](#),” and continues to work on addressing climate resilience, socio-environmental systems, and holistic concepts as applicable to TMDLs and watershed management.

The purpose of this Special Collection is to showcase recent advances in analysis and modeling for TMDL development and implementation as well as for holistic watershed management addressing climate resilience and socio-environmental systems in a transdisciplinary approach.

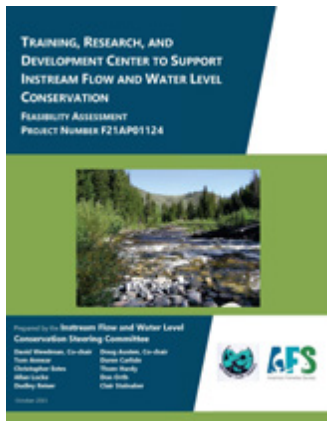
This special collection is specifically focusing on the following themes:

- Advancement in the state-of-the-art of analysis and modeling in TMDL development and implementation planning, including model calibration and validation, and uncertainty analysis, optimization, and use of artificial intelligence / machine learning.
- Advancements in the watershed, receiving water, and integrated models; and modeling of best management practices, including low impact development and green infrastructure.
- Critical evaluations of completed TMDLs and holistic watershed management approaches in a changing climate.
- Data science in support of TMDL monitoring and modeling, including modeling under data-scarce situations.
- Harmful algae blooms (HABs) management approaches through monitoring, prediction, and mitigation.
- Incorporation of social aspects of watershed management (justice, equity, diversity, and inclusion), stakeholder participations and cooperation, and development of socio-environmental system models.



# Establishing a new Instream Flow and Water Level Conservation (IFWLC) Training, Research, and Development Center: Progress Report

Christopher Estes, M.ASCE



## Background:

For nearly two decades, interdisciplinary instream flow related conservation (i.e. protection, restoration and enhancement) training, research and development services were provided under the direction of the federal Cooperative Instream Flow Service Group (CIFSG) in Fort Collins, Colorado.

After that group ceased to exist in 2001, no equivalent centralized uniform source of instream flow and water level conservation (IFWLC) training and support services has been established.

Many who received training by the CIFSG have subsequently retired or moved to other jobs. As a result, this interdisciplinary water conservation field has been losing a central focus, potentially leading to diminished knowledge, mentorship, and leadership for quantifying the effects of water uses, management, and research on effective conservation of instream flow and water levels on fish, wildlife, and habitat.

These and related concerns are being addressed by the [Instream Flow Council](#) (IFC) and [American Fisheries Society](#) (AFS) through a multistate conservation grant project to first assess the needs and support for establishing a new IFWLC training, research, and development center (Center), and contingent on positive outcomes of the assessment, develop strategies and pathways forward to establish and operate the Center.

As part of this process, the IFC and AFS established a steering committee (SC) comprised of the following experts representing governmental, non-governmental, academic, and private sectors with extensive experience in integration of the interdisciplinary development, training, and application of IFWLC methods, and who have remained actively involved in water resource allocation issues:

- Co-Chair David Weedman, IFC Past President
- Co-Chair Doug Austen, AFS Executive Director
- Tom Annear
- Daren Carlisle
- Christopher Estes
- Thom Hardy
- Allan Locke
- Donald Orth
- Dudley Reiser
- Clair Stalnaker

The results of the completed assessment portion of this project established the need, support, strategies, and pathways forward to develop the Center and is [available for download](#).

## What's Next?

The next project steps will include crafting a business plan to facilitate implementation of the assessment recommendations and execution of other preliminary actions required to establish and operate the Center.

## Citation:

Weedman, D., D. Austen, T. Annear, D. Carlisle, C. Estes, T. Hardy, A. Locke, D. Orth, D. Reiser, and C. Stalnaker. 2023. **Training, research, and development center to support instream flow and water level conservation: Feasibility assessment**. Multistate Conservation Grant Project Number F21AP01124, Wildlife and Sport Fish Restoration. Instream Flow and Water Level Conservation Steering Committee. [Instream Flow Council](#) and [American Fisheries Society](#). 78 p.



**World Environmental & Water Resources Congress**  
Milwaukee, WI | May 19-22, 2024

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[EWRICongress.org](http://EWRICongress.org)



# **EWRI Member Spotlight: Jianpeng (Jim) Zhou, Ph.D., P.E., BCEE, F.EWRI, Chair of the Technical Coordination ExCom (Tech ExCom)**



The EWRI Communications Council has worked to put together a series of questions to get to know our members so that we can feature our members in a “member spotlight.” We’ll be sharing these quarterly interviews, and hope that you enjoy getting to know our membership! If you’re interested in participating, please contact EWRI!

This month, we are sitting down with Dr. Jianpeng (Jim) Zhou, P.E., BCEE, F.EWRI, Chair of EWRI Technical Coordination Executive Committee (Tech ExCom), to hear about how he became involved with EWRI.

## **How did you originally get involved with ASCE/EWRI?**

I joined EWRI nearly 20 years ago after I moved from Canada to US to take an environmental engineering faculty position at my current university, Southern Illinois University Edwardsville. I started to get actively involved with EWRI by joining in the Residuals Management Technical Committee of the Water, Wastewater, and Stormwater Council at EWRI’s 2006 Congress in Omaha, Nebraska. Ever since, I have been involved in a range of EWRI committees and programs at both national and local levels.

## **What benefits have you realized?**

Getting involved with EWRI has realized tremendous professional benefits to me in many ways. EWRI’s strength in both environmental and water resources helped me to expand my technical background and capabilities from water and wastewater engineering into stormwater and green infrastructures. Such professional growth helped me to develop and obtain a number of research grants on stormwater management for urban communities, roads and highways, resulting in publications in journals and conference proceedings, and for government agencies. These works also led to my assignments with a number of World Bank and Asian Development Bank funded infrastructure projects on watershed-based environmental management and water pollution control, and low impact development.

My active involvement with various EWRI committees, councils, my local chapter, and currently the Tech ExCom, the learning from the people I met through EWRI have provided me excellent experience and development in leadership, which have greatly helped my work at the university especially during the time when I served as the chair of my Civil Engineering Department.

## **What committees do you participate in?**

I started with the Water, Wastewater, and Stormwater Council, served as its Residuals Management Technical Committee’s secretary, vice-chair, chair, and past chair between 2006 and 2012; as the Council’s secretary, chair, past chair, and Tech ExCom representative between 2010 and 2018. Then, I became increasingly involved with the International Council, served as its International Participation Committee’s vice-chair, chair, and past chair between 2016 and 2022. During that time, I led the development and forming of the International Linkage Task Committee in 2019 and served as its chair between 2019 and 2023.

I was elected to the Tech ExCom in 2021 to serve as its vice-chair. Since 2023, I have been serving as the Tech ExCom chair and a member of the EWRI Governing Board. In addition to my service at the national level, I have been actively involved in EWRI St. Louis Chapter, served as its secretary/treasurer, vice-chair, chair, and past chair between 2016 and 2023.

**What advice would you give to someone considering becoming involved in ASCE/EWRI?**

EWRI is a welcoming professional community. It offers plenty of opportunities for anyone who wants to get actively involved at either national or local level. We can learn about EWRI from various information sources, talk to our peers who are already involved in the Institute, simply show up and volunteer our service to the Institute through various committees and activities.

**What is your favorite project you've worked on in your career?**

One of the most interesting projects I worked on is my USEPA funded Community Rooted Green Infrastructures for Urban Water Improvements project. In addition to technical evaluation on the performance of field-scale green infrastructures for reduction of stormwater in combined sewers, this project involved in environmental education and training for an economically disadvantaged community, outreach to and engagement with the local citizens, building partnership and collaboration among stakeholders that included federal and local government agencies, a large wastewater and stormwater service utility, a non-governmental organization, the neighborhood association, and the residents. Findings from this project were in part published in an ASCE/EWRI journal. The multidisciplinary nature and the broad knowledge base required for carrying out this project made the work very enjoyable and the experience very rewarding.

**What is something that surprised you with a project?**

I found myself often get surprised with the work I did: sometimes from underestimating the complexity of the work, sometimes from learning about new perspectives and ideas that I haven't even thought about, sometimes from decisions that resulted in unintended consequences. What I learned from these surprises are that I must stay open-minded, keep on learning, continue to improve myself and the work I do .

**What is one piece of advice you would give to your younger self?**

Looking back, I would do what I have done with active involvement in and engagement with professional societies like EWRI, reaching out to my peers, asking for advice and guidance, and offering my service to others and to the Society/Institute.





# Major California reservoir project faces legal challenge

Jay Landers

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In late December, a group of environmental organizations filed a legal challenge to the massive \$4.5 billion Sites Reservoir project planned for Northern California. The move to halt the delivery of the 1.5 million acre-ft reservoir in the Sacramento Valley represents the first case to be tried under a new legal process designed to expedite challenges to certain infrastructure projects in California.

## Project streamlining

Democratic California Gov. Gavin Newsom in July signed into law a slate of bills intended to streamline the development of infrastructure in the Golden State. Among them was SB 149, which created procedures to expedite legal challenges brought forward against certain infrastructure projects under the California Environmental Quality Act.

CEQA requires that California agencies evaluate the potential environmental impacts of projects they aim to carry out or approve. Parties that contest the findings of this evaluation process for a given project may bring legal action, requiring judicial review of the findings of the relevant environmental assessment. SB 149, in essence, aims to expedite this judicial review process in the case of certain infrastructure projects selected, or certified, by California's governor.

On Nov. 6, Newsom used this new authority for the first time, certifying the Sites Reservoir project as eligible for the expedited judicial review process. The project would amount to the first major reservoir to be constructed in California in decades.

## Multiple benefits

"We're cutting red tape to build more faster," Newsom said regarding his certification of Sites Reservoir, in a Nov. 6 news release. "These are projects that will address our state's biggest challenges faster, and the Sites Reservoir is fully representative of that goal — making sure Californians have access to clean drinking water and making sure we're more resilient against future droughts."

[Continue the article online.](#)

# 'Floating City' offers urban solution to rising sea levels

David Jen

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Global sea levels continue to rise despite efforts that cities around the world are making to mitigate the effects of climate change and reduce their carbon emissions.

One firm, however, is hoping to combat the effects of climate change. Luca Curci Architects (LCA), based in Venice, Italy, has released Floating City — a concept that would allow urban areas to rise with the waters, while leveraging renewable energies to reduce their own carbon emissions.

Displayed at the Biennale Architettura 2023 international architecture exhibition in Venice, the proposed floating city would have 25 acres of interconnected floating platforms supporting high-rise and low-rise buildings for residences, offices, government organizations, health care facilities, and schools — large enough for 50,000 people, according to written press materials provided by LCA.

The project team fed descriptive, natural-language text of their idea into artificial intelligence models to generate imagery for the concept, says architectural designer Tim Fu, who collaborated on the project.

Floating City, which can expand to accommodate more than 200,000 people, was designed to "adapt to the shifting needs" of coastal cities that are particularly vulnerable to sea level rise, like New York; Jakarta, Indonesia; and Shanghai, according to LCA.

Materials for the buildings would comprise a combination of reinforced concrete, steel, and composites, with salt-water corrosion playing a central role in the choices, according to architect and LCA founder Luca Curci. These buildings could reach heights of up to 90 m, only limited by the stability and safety considerations of resting on a floating platform.

[Continue the article online.](#)



## Two recent ASCE board members tabbed for 2025 president-elect ballot

Marsha Anderson Bomar, AICP, ENV SP, F.ITE., F.ASCE, and Kenneth H. Rosenfield, P.E., ENV SP, F.ASCE, are the official nominees for ASCE 2025 president-elect as approved by the Board of Direction Nominating Committee.

Society members will be able to vote for their preferred nominee during the [annual election](#), which opens May 1, 2024 with online ballots accepted through June 1, 2024.

ASCE will induct the election winner as the 2025 president-elect at the Society's annual business meeting during the ASCE 2024 Convention located in October in Tampa, Florida. They would then assume the role of Society president for 2026.

[Learn more about each nominee](#) and the 2024 ASCE election.



**Marsha Anderson Bomar,**  
F.ITE, AICP, ENV SP, F.ASCE



**Kenneth Rosenfield,**  
P.E., ENV SP, F.ASCE

# Nominate a Colleague for an ASCE or EWRI Award

Anastasia Chirnside, Ph.D., M.ASCE

Do you know a colleague that deserves recognition? There are many EWRI awards and ASCE awards that may be the means to that deserved recognition. Nominate your esteemed colleague to any of the prestigious awards listed in the table below. Some of the awards are governed by EWRI, while some of the awards are general ASCE awards. The nominations for most of the awards are due October 1st. The OPAL Award nominations are due on June 1st. The details for these awards can be found on the [ASCE website](#). Honor your associate and nominate someone today!

<b>Society (ASCE) Awards for Career Achievement</b>	
<b>AWARD</b>	<b>COUNCIL</b>
Arid Lands Hydraulic Engineering Award	Hydraulics & Waterways; Irrigation & Drainage; Watershed
Hans Albert Einstein Award	Hydraulics & Waterways; Coasts, Oceans, Ports & Rivers Institute
Hunter Rouse Hydraulic Engineering Award & Lecture	Hydraulics & Waterways
Hydraulic Structures Medal	Hydraulics & Waterways
Julian Hinds Award & Lecture	Planning & Management
Karl Emil Hilgard Hydraulic Prize	Paper award; flowing water
Margaret S. Petersen Award	Irrigation & Drainage
OPAL Award (Outstanding Projects and Leaders Award)	Planning & Management
Royce J. Tipton Award & Lecture	Irrigation & Drainage
Rudolph Hering Medal	Environmental Engineering (paper award)
Samuel Arnold Greeley Award	Environmental Engineering (paper award)
Simon W. Freese Environmental Engineering Award & Lecture	Environmental
Ven Te Chow Award & lecture	Watershed
Walter L Huber Civil Engineering Research Prize	
Wesley W Horner Award	Paper award, Environmental
<b>EWRI/ASCE Awards</b>	
EWRI Career and Service Awards	
Lifetime Achievement Award	
Jeff Bradley Service to the Institute Award	
Service to the Profession Award	Planning & Management
Urban Water Resources Research Council Outstanding Service Award	Urban Water Resources Research
Urban Water Resources Research Council Founder's Award	Urban Water Resources Research
Pioneers in Groundwater	Groundwater
<b>EWRI Special Achievement &amp; Appreciation Awards</b>	
Outstanding Technical Group/Institute Chapter Award	
Task Committee Excellence Award	
<b>Standards Development Council (SDC) Awards</b>	
EWRI SDC Service Award	Standards Development Council
EWRI SDC Merit Award	Standards Development Council
EWRI SDC Member Recognition	Standards Development Council
ASCE Codes & Standards Committee (CSC) Merit Award	Codes & Standards Committee
ASCE CSC Past Chair Recognition	Codes & Standards Committee
ASCE CSC Former Member Recognition	Codes & Standards Committee

# Continuing Education & Publications

## [ASCE Seminar Week](#) - March 18–29, 2024

ASCE Seminar Week is an ASCE Continuing Education event with the most popular and new seminars in one location. We offer a wide variety of top-quality educational programs taught by experts in their fields. Grow your knowledge, advance, and stay current with your professional career while earning credits.



Did you know that the PE exam is changing as of April? ASCE is excited to now offer [PE review courses](#) in bootcamp style that have been newly updated and aligned with NCEES new Reference Handbook and Exam Specifications. Join us March 20–22 for our new intensive, three-day courses, which are available in-person or live-streamed.



[Computational Methods in Low Impact Development Stormwater Control Measures](#) provides a summary of current low impact development (LID) computational methods. This particular report focuses on the approaches that address hydrologic or hydraulic processes such as runoff generation, infiltration, evapotranspiration, flow conveyance, and detention.

[Standard Practice for Sustainable Infrastructure, ASCE/COS 73-23](#), addresses development and implementation of sustainable infrastructure solutions through the entire infrastructure life cycle. It can be used for infrastructure solutions of any scale, although it is specifically not intended to unduly burden small projects.



## [On-demand webinar packages - NEW](#)

Unlock success with our new on-demand webinar packages. Learn from industry experts and propel your career.

- Build Your Own - Choose 10 on-demand webinars of your choice.
- Preset - Explore on-demand webinar packages that have been built for you.



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## Live Webinars

### January 31, 2024 - [Hydraulics 101 Part I & II](#)

How many of you get confused when hydraulic engineers use fancy terms such as unsteady flow, allowable shear stress, hydraulic radius, Manning's "n" or 100-year flood? If you are a professional who needs to work with hydraulic engineers or read their reports as an input to your work, it is essential that you fully understand "where they are coming from." This webinar will enable you to "talk the talk" and to understand the basis of the analyses that goes into hydraulic studies.

### February 20, 2024 - [Stream Restoration - What Works and What Doesn't Work - Newly Updated](#)

Stream restoration is widely practiced in developed countries, with annual expenditures in the U.S. exceeding \$1 billion. However, few projects are monitored, and many that have been monitored have performed poorly. Accordingly, the ability of stream restoration engineers to deliver promised benefits is in question. This webinar will provide a synthesis of available data regarding effectiveness of selected stream restoration approaches, identifying key factors that lead to success or failure. These factors may be combined in an overall semi-quantitative assessment of the risk of project failure. The webinar should equip participants to produce stream restoration projects that more closely approach stakeholder expectations.

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## Certificate Programs

### [Water Treatment Certificate Program](#)

The Water Treatment Certificate Program provides professional engineers with the skills to take their water resources career to the next level.

### [Geographic Information Systems for Asset Management Certificate Program](#)

The Geographic Information Systems for Asset Management Certificate is designed to help engineers develop systems to obtain knowledge and understanding of large spatial datasets.

