



PRESIDENT'S MESSAGE & EDITOR'S CORNER

CLARIFYING
EVAPOTRANSPIRATION:
NEW TECHNICAL NOTE ON
ET TERMINOLOGY

**DR. RICHARD H. "PETE"
HAWKINS RECOGNITION
EVENT**

THE PASSING OF HAROLD
JOHN (JACK) DAY

**THE TOTAL MAXIMUM DAILY
LOAD ANALYSIS AND
MODELING TASK COMMITTEE
OF WATERSHED COUNCIL'S
WATERSHED MANAGEMENT
TECHNICAL COMMITTEE IS
ADVANCING THE PFAS
MODELING IN WATERSHEDS
AND RECEIVING WATERS**

BUILDING RESILIENCE TO
COASTAL FLOODING
THROUGH LIVING
SHORELINES: LESSONS FROM
THE RESILIENT PASCO
PROJECT

**DEVELOPMENT AND
APPLICATION OF A POND
ASSESSMENT TOOL**

HARNESSING THE POWER OF
ARTIFICIAL INTELLIGENCE IN
WATER ENGINEERING:
ESTABLISHMENT AND
ACTIVITIES OF THE ASCE-
EWRI ML/AI IN WATER
ENGINEERING TASK
COMMITTEE

**JOINT COMMITTEE ON
FISHERIES ENGINEERING
AND SCIENCE: IF YOU
RESTORE IT, THEY WILL
SWIM UPSTREAM**

RESOURCES FOR ENGINEERS
AND PRACTITIONERS ON
RESILIENCE

**WELCOME KAREN KABBES,
P.E., ENV SP, BC.WRE,
F.ASCE - CEC PRESIDENT
FOR 2026!**

PRESIDENT'S MESSAGE



Lily Baldwin,
2025-2026 EWRI President

President's Message -
Revitalizing our Institute!

Fall marks the beginning of the biggest privilege of my professional career, to serve as president of ASCE's Environmental and Water Resources Institute.

educational resources. What content is suitable for delivery at the highly multi-disciplinary ASCE 2027 Convention? What specialized content might be better for a more focused specialty conference or workshop? Their task is to explore innovative content delivery methods for all of our members' professional education resource needs. Lastly, the fourth Task Committee is charged with creating and measuring success metrics for ASCE 2027 Convention to assure continuous improvement.

Speaking of ASCE2027, have you noticed that the [ASCE2027 website has launched](#)? Submit your abstract to the [ASCE2027 call for content](#). The Planning Committee is looking for your ideas for sessions, panels, workshops, and short courses today! If you'd like to know how the planning is shaping up, you can also sign up for routine [updates to ASCE2027 developments](#).

From topics of strategic importance to operations in alignment with our culture and values, we also finalized our updated EWRI Operations Manual. After a year-long effort by a task committee to better organize and update the content, the manual is more streamlined while enhancing transparency and inclusiveness.

There are big things ahead for our Institute. Stay tuned...

The start of October saw our Governing Board and Council leaders come together at ASCE Headquarters in Reston, Virginia, to plan and prepare for an impactful year of revitalizing our Institute at our annual Leadership Council Weekend. We talked about what we wanted to do in the months ahead, and how we will accomplish our goals and objectives with professionalism and transparency.

Topmost on our minds was implementing our Strategic Plan. The Governing Board kicked off four Task Committees to address themes identified by EWRI leaders at the Listening Sessions we held at our Anchorage Congress back in May. The first Task Committee is charged with rebooting our Communications Strategy to better align with current professional communication content formats, platforms, and delivery methods. The second Task Committee is charged with better understanding the data types and sources our EWRI community needs to effectively accomplish our jobs as civil and environmental engineers.

The third and fourth Task Committees look forward to ASCE2027 and the changes it will bring to EWRI Congress. One of these Task Committees is on Content Delivery, charged with understanding EWRI members' needs for planning, development, and delivery of technical

2026 Legislative Fly-In

Apply today for the 2026 Legislative Fly-In on March 18-20, 2026 in Washington, D.C.!

ASCE's Legislative Fly-In is your opportunity to apply your year-round advocacy leadership for ASCE and interact directly with congressional offices in Washington, D.C.

The 2026 Fly-In program includes:

- Meetings on Capitol Hill with your Members of Congress or their staff on key issues like the upcoming surface transportation and Water Resources Development Act reauthorizations.
- Exclusive briefing sessions on key activities in Congress and ASCE's legislative priorities.
- Interactive training on lobbying and influencing your elected leaders — including pre-event webinars.
- Networking with your ASCE peers from across the country.
- Tips on continuing relationships with your elected officials once you return home.

[Be sure to complete your application](#) by Friday, November 14th at 11:59 pm Eastern Time.



EDITOR'S CORNER



Emma Sutherland,
Chair, Communications
Council

Greetings!

This issue of EWRI Currents highlights exciting advances and meaningful moments across our community.

From the University of Minnesota's new Stormwater Pond Assessment Tool,

providing stormwater practitioners with a practical way to evaluate monitoring or maintenance strategies for phosphorus management, to Pasco County's Living Shorelines Project, which transformed real-time insights from multiple hurricanes into resilient coastal design strategies and underscored the importance of policy integration and public engagement, our members continue to turn research into action.

This issue also honors the legacies of those who paved the way such as Dr. Richard "Pete" Hawkins, recognized for his six decades of work in curve number hydrology, and Dr. Harold "Jack" Day, a lifelong educator and environmental leader.

As we look ahead to upcoming opportunities like the 2026 LID Conference and Watershed Management Conference, I'm reminded that progress in our field depends on shared knowledge and collaboration. Thank you to all who contribute your time, expertise, and passion to advancing EWRI's mission.

If you have an article you would like to contribute for a future edition of Currents, or if you would like to learn about opportunities to get more involved with EWRI, please reach out to me (emma@drummondcarpenter.com) or Jennifer Jacyna, Senior Manager, EWRI (jjacyna@asce.org).

Clarifying Evapotranspiration: New Technical Note on ET Terminology

Efforts to standardize evapotranspiration (ET) methodology have progressed over the last few decades, yet confusion about ET terminology remains. To provide a more reliable foundation for communications in water resource planning and irrigation management, a new technical note is now publicly available in ASCE Journal of Irrigation and Drainage Engineering, titled "[Evapotranspiration Terminology and Definitions](#)". This important resource defines 30 terms related to ET (the combination of water evaporation and plant transpiration) and clarifies many nuances of ET measurement and estimation methods, including crop coefficient approaches, applications to nonagricultural vegetation, practical guidelines for reference ET calculation, encouragement to replace "potential ET" terminology with better terms, ET products from remote sensing, role of ET in water rights, and illustrations to clarify the meaning of various ET terms.

This technical note will serve as a comprehensive reference guide for ET practitioners and researchers, including hydrologists, irrigation engineers and specialists, agricultural scientists and agronomists, farmers and landscapers, climatologists and meteorologists, water resource managers and planners, environmental scientists, policy makers and regulators, consulting engineers and technical advisors, and students of hydrology, agriculture, and environmental sciences.

This important paper was spearheaded by the ASCE-EWRI Evapotranspiration in Irrigation and Hydrology Committee, a national group of experts in ET. Writing of this technical note was highly collaborative, with over 27 coauthors contributing. Input on drafts of the paper was solicited from dozens of stakeholders including state and Federal agencies, irrigation and water resource organizations, industry partners, researchers, and international groups, and over 50 stakeholders wrote letters of support for the project. Finally, this technical note was written in collaboration with 2025 updates to the American Society of Agricultural and Biological Engineers (ASABE) standards on soil and water nomenclature, to ensure consistent terminology among multiple professional groups.

[The open-source technical note can be found here.](#)

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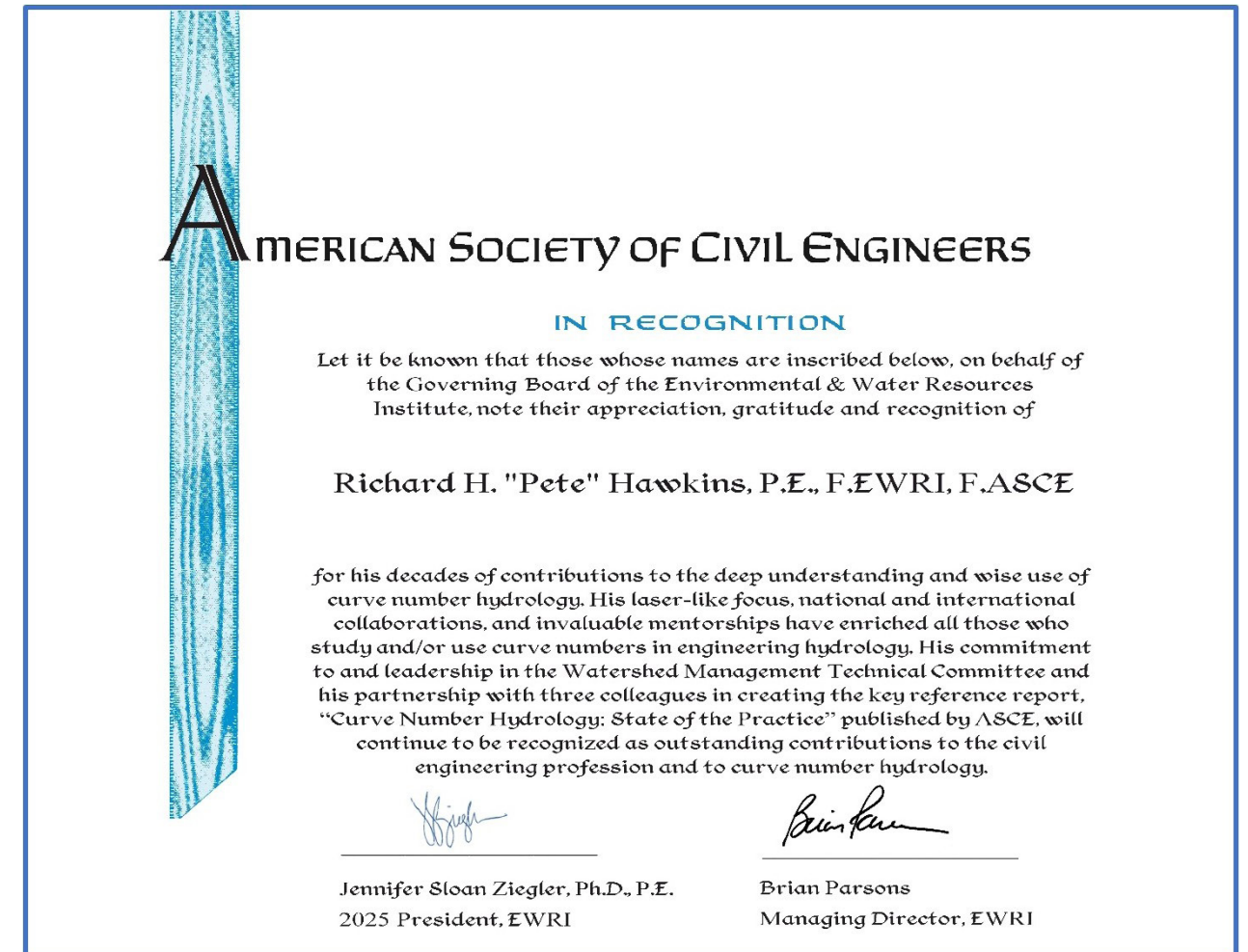
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Dr. Richard H. "Pete" Hawkins Recognition Event

Tim Ward, Ph.D., P.E., F.EWRI, F.ASCE

On July 28, 2025, the Curve Number Hydrology Task Committee, under the auspices of ASCE/EWRI, convened an online recognition ceremony for Dr. Richard H. "Pete" Hawkins. The ceremony recognized Dr. Hawkins for "... his decades of contributions to the deep understanding and wise use of curve number hydrology." As part of the ceremony, Brian Parsons, Managing Director Environmental & Water Resources Institute and ASCE Chief Sustainability Officer, presented Dr. Hawkins with a certificate of appreciation, gratitude, and recognition.



Oral, personal testimonials, and/or anecdotes honoring Pete were delivered by invited speakers from his past and present - Dr. Steve McCutcheon, Mr. Don Woodward, Dr. Jim Bonta, Dr. E. Bill Tollner, Ms. Julianne J. Miller, Mr. Hunter Birckhead, Dr. John Ramirez-Avila, Dr. Tim J. Ward, and Dr. Glenn E. Moglen. In closing, Pete thanked those in attendance and cited others from his past who contributed to his and our understanding of curve numbers. Forty-two people attended the event including members of Pete's family.

Before the ceremony, the organizing group prepared a 37-page Remembrance Book. Members of EWRI and others were asked to contribute testimonials and/or anecdotes and several were received honoring him. The Remembrance Book also includes a short bio and a bibliography of his works related specifically to curve numbers.

The book's closing is a thank you to Pete -

The written tributes show our heartfelt and sincere congratulations to Dr. Richard H. "Pete" Hawkins on this well-deserved and well-earned recognition for his six decades of Curve Number research, teaching, and mentorship throughout the world.

We are reminded of advice Pete has quoted from H. D. Thoreau, "... it is a characteristic of wisdom not to do desperate things." He taught us to think critically about if, when, and how the Curve Number method should be employed, emphasizing the necessity of context and judgment in hydrologic modeling.

Pete's legacy is not only measured by his scholarly contributions but also by the countless professionals he inspired to approach hydrology with rigor and reflection. His wisdom will continue to guide our work for generations to come.

On behalf of the organizing group, we thank all of those who participated and contributed oral and written tributes to Pete and to Adrienne Yeh and Brandy Adams of the ASCE/EWRI who facilitated the event planning and logistics.

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Manhattan University
The Bronx, New York
Member, ASCE/EWRI Curve Number Hydrology Task Committee



Pablo y Pete
Málaga, España
Cubismo y Números Curvos
(Cubism and Curve
Numbers)

The Passing of Harold John (Jack) Day

Harold John (Jack) Day died on August 31, 2025, at the age of 96. He was born to Everett and Mary (Godfrey) Day on May 22, 1929 in Milwaukee, Wisconsin. Jack graduated from Washington High School in Milwaukee and enlisted in the Navy at age 17. Following Electronic Material School at Great Lakes Naval Training School, he was assigned to the aircraft carrier USS Philippine Sea CV47 and then on to the Mediterranean as part of the US Sixth Fleet. He served two years in the Navy. Upon release he enrolled at the University of Wisconsin Madison where he graduated with a B.S. degree in Civil Engineering in 1952 and a M.S. in 1953. During his time in Madison, Jack met the love of his life, Janis Carlson. They were married June 20, 1953, and shared 66 years together.

Following graduation Jack worked for Scott Paper as a Pulp Mill Engineer in Oconto Falls, WI and later as a Maintenance Engineer in South Glens Falls, NY and Chester, PA. He returned to the University of Wisconsin Madison to enroll in the PhD program for Civil Engineering in 1959 and received his degree in 1963. The family then moved to Pittsburgh, PA where Jack worked as an Associate Professor of Environmental Engineering at Carnegie Mellon University for seven years. When the University of Wisconsin expanded to include a campus in Green Bay, the family returned to Wisconsin in 1970. Jack was a professor for 25 years at the University of Wisconsin Green Bay, teaching classes in environmental science until his retirement at the age of 65. As part of his professional responsibilities in Green Bay, Jack served as a citizen commissioner of the Green Bay Metropolitan Sewerage District. He was one of six citizens managing the establishment and operation of the wastewater treatment system for a period of 29 years.

Jack continued to work as a consultant after retirement. He worked for the United Nations as part of the Industrial Development Organization in Viet Nam and received three Fulbright awards to conduct studies in Viet Nam and Mexico. He was also a guest professor in Viet Nam, Mexico and Peru and traveled extensively throughout the world. His wife Jan was at his side through most of his travels and they made many friends over the years.

Wisconsin held a special place in Jack's heart as his family and Jan's family lived in the state for multiple generations and part of their homesteads are still in family hands. His interest in clean water, the environment and global warming continued long past his retirement and consulting days were over. His former students and colleagues, with help from Jack's sister Audrey, organized what was called, "The Jackfest" in 2022 at Jan's family home in northern Wisconsin. Jack was an eternal optimist who believed in problem solving by motivating others to join him in battling environmental woes. His motto was, "If not Me, then Who? If not Now, then When?". He received numerous honors over the years. An education building at the mouth of the Fox River and the bay was named in his honor.

Jack was preceded in death by his parents, wife Janis (Carlson) Day, and brother William Day. He is survived by his two daughters Katharine Van Rooy and Carolyn (Monte) Radeke, seven grandchildren, John (Chaimae Bakour) Van Rooy, Thomas (Laia Marco Perpina) Van Rooy, Sarah (Justin) Orlor, Paul (Abbey Berg) Van Rooy, Mary Van Rooy, Mason (Gia) Radeke, and Marisa (Brent) Martin and three great grandchildren, Amalia Van Rooy, Mila Radeke, and Briggs Martin, one sister Audrey (Bruce) Kemp and one brother in law, Thad (Janet) Carlson.

The family would like to recognize the special friendship Jack had with the people at the mall and all the caring people at the United Methodist Church who supplied him with coffee and cake after the service. They were his social life after Jan's death. The family would also like to thank Unity Hospice, Home Instead and Cornerstone for their care during Jack's illness.

The Total Maximum Daily Load Analysis and Modeling Task Committee of Watershed Council's Watershed Management Technical Committee is Advancing the PFAS Modeling in Watersheds and Receiving Waters

Harry X. Zhang, PhD, PE, F. EWRI

American Society of Civil Engineers (ASCE) [Manual of Practice \(MOP\) 150](#), titled "Total Maximum Daily Load Development and Implementation: Models, Methods, and Resources,"** focused on the state of the practice for common pollutants of concern in watershed and water quality modeling (e.g., nutrients and sediments). As contaminants of emerging concern (CECs) (or constituents of emerging concern) are increasingly being detected at low levels in surface waters, there are concerns that these compounds may have an impact on receiving waters and aquatic life. One specific group of CECs that has received widespread attention is per- and poly-fluorinated substances (PFASs). This is one of the current knowledge gaps identified for watershed modeling and affiliated water quality modeling after the publication of ASCE MOP 150.

To further advance the watershed and water quality modeling practices, the TMDL Analysis and Modeling Task Committee took a forward-looking view and proactive approach to PFAS modeling, which is to synthesize the model advancements in simulating PFASs to date and recommend the future research needs in the context of holistic watershed management. This collaborative team effort resulted in a paper titled "Advances and Research Gaps for PFAS Modeling in Watersheds and Receiving Waters"***. In addition to a concise summary of PFAS source assessment, this paper has provided example applications of PFAS watershed and receiving water modeling across geographic regions.

In summary, advances in watershed and receiving water models can facilitate the modeling of PFASs in support of water quality-based decision making. The state of the practice for modeling PCBs and other complex pollutants can be followed as a suitable starting point. Regarding research gaps, many process formulations for PFAS modeling are still empirical in nature and need additional rigorous evaluations for real-world modeling applications.

*ASCE-EWRI TMDL Analysis and Modeling Task Committee. 2022. *Total maximum daily load development and implementation: Models, methods, and resources*. ASCE manuals and reports on engineering practice no. 150, edited by H. X. Zhang, N. W. T. Quinn, D. K. Borah, and G. Padmanabhan. Reston, VA: ASCE. <https://doi.org/10.1061/9780784415948>.

**Zhang, H. X., Babbar-Sebens, M., Ahmadisharaf, E., Camacho-Rincon, R. A., Imen S. 2025. Advances and Research Gaps for PFAS Modeling in Watersheds and Receiving Waters. *Journal of Environmental Engineering*. Volume 151, Issue 11, November 2025. <https://doi.org/10.1061/JOEEDU.EEENG-8137>. (online version available)

Building Resilience to Coastal Flooding Through Living Shorelines: Lessons from the Resilient Pasco Project

Sean D. Lahav, Drew Sanders and Troy Dorman, Ph.D., P.E., M.ASCE

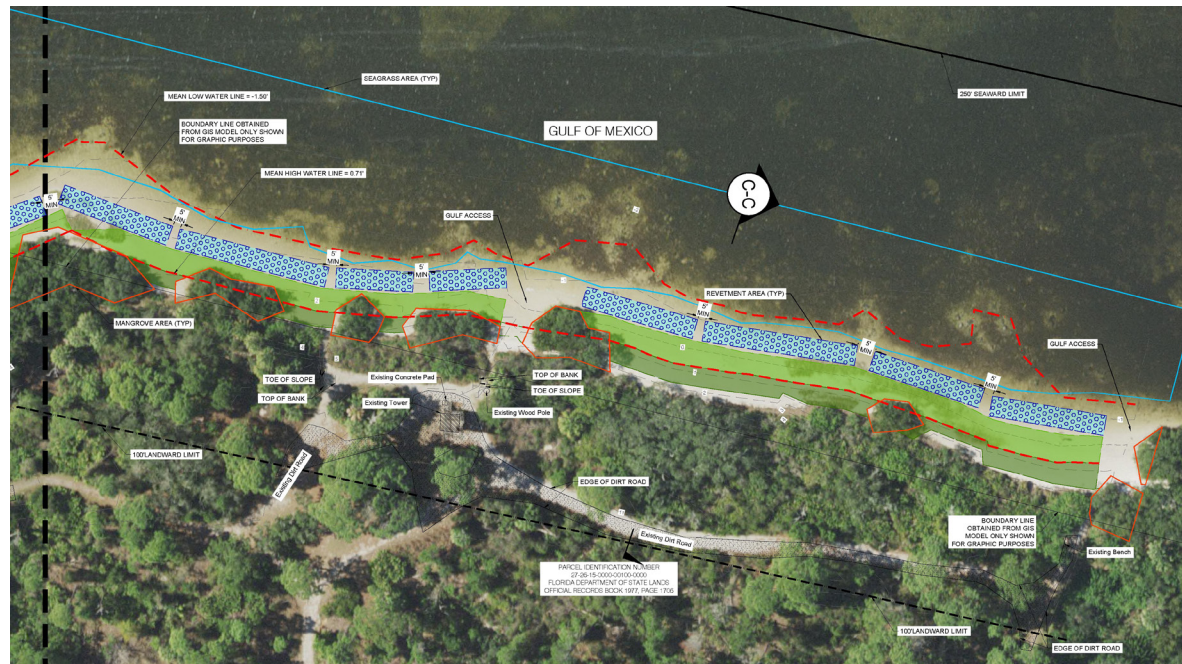
Pasco County, located along Florida's Gulf Coast north of Tampa Bay, faces increasing vulnerabilities to coastal flooding, erosion, and sea level rise. To address these challenges, the County launched the Resilient Pasco Project, its first comprehensive effort to develop a long-term resilience and sustainability framework. During the project's planning process, hurricanes Idalia, Debby, Helene, and Milton impacted the region, revealing the fragility of infrastructure and natural systems and highlighting the urgency of strategies that protect communities while building long-term resilience. Among the project's three interlinked deliverables—a Risk and Vulnerability Assessment (R&VA), a Resilience and Sustainability Action Plan (RSAP), and a Living Shorelines Plan (LSP)—the LSP specifically advanced nature-based solutions for protecting several of the County's coastal parks, shorelines, and associated infrastructure.

The Living Shorelines Plan specifically focused on three public parks that exemplify the challenges faced by Gulf Coast communities: Anclote River Park, Key Vista Nature Park, and Robert K. Rees Memorial Park. These sites have historically experienced chronic erosion, storm surge impacts, and ecosystem degradation, amplified by hurricanes and ongoing sea level rise. The LSP was conceived not only to stabilize shorelines but also to restore ecological function, protect coastal resources, and enhance public access. Over a six-month planning period, the County convened a multidisciplinary team including environmental scientists, coastal engineers, surveyors, and local government officials. The team conducted site visits, surveyed subaquatic vegetation, analyzed shoreline conditions, and modeled current and projected storm surge and wave impacts. This comprehensive approach confirmed that the conceptual designs balanced flood risk reduction, habitat restoration, and feasibility within existing regulatory and geographic constraints.



Existing Site Conditions at Key Vista Nature Park in Pasco County, Florida (Source: Halff, 2025)

At Anclote River Park, the conceptual design combined oyster bag breakwaters with native vegetation plantings along a low-energy shoreline. The oysters were suitable for the calmer conditions and were intended to dissipate wave energy, trap sediment, and support habitat development while the vegetation further stabilized the shoreline and enhanced ecological function. At Key Vista Nature Park, the LSP incorporated both structural elements and extensive plantings of mangroves and saltmarsh species. Because the site experiences higher wave energy, more robust erosion control features were paired with vegetation to rebuild natural buffers, reduce erosion, and promote biodiversity. Robert K. Rees Memorial Park faced high-energy conditions and a constrained shoreline due to a failing seawall and limited buffer width. The LSP recommended a hybrid approach that reinforced the seawall and layered in native plantings and living shoreline elements to absorb wave impacts, reduce erosion, and improve long-term resilience. Across all three locations, vegetation and structural components were used, but the type and scale of the structures were dictated by the site's energy environment. Designs were informed by hurricane impacts, wave dynamics, and environmental sensitivity to confirm site-specific effectiveness.



Final Construction Plans for Key Vista Nature Park (Source: Halff, 2025)

The hurricanes that struck during the planning process provided real-time insights into the vulnerabilities of each park and underscored the urgency of resilient design. Observations from storm damage directly informed the placement and scale of living shoreline features, as well as the selection of materials and vegetation types capable of withstanding repeated storm events. These experiences highlighted the importance of adaptive management: living shorelines are dynamic systems, and ongoing monitoring and adjustments are essential to ensure long-term performance and ecological function.

Beyond physical design, the LSP emphasized policy integration and public engagement. Recommendations were made for incorporating living shoreline strategies into Pasco County's comprehensive plan and code of ordinances, establishing regulatory support for nature-based solutions. A homeowner's guide to living shorelines and a digital story map were produced to educate residents, highlight the planning process, and promote awareness of the benefits of natural shoreline stabilization. Multiple workshops, including public and stakeholder-specific sessions, confirmed that the LSP reflected community priorities, leveraged local knowledge, and built consensus around feasible strategies. This combination of technical planning, regulatory guidance, and community engagement positions Pasco County to implement living shoreline projects that are both effective and broadly supported.

The LSP represents a tangible example of how nature-based solutions can serve multiple objectives simultaneously. Oyster bags, mangroves, and saltmarsh vegetation not only stabilize shorelines and reduce wave impacts but also create valuable habitat for coastal species, enhance water quality, and provide recreational and educational opportunities for the public. By addressing both ecological and infrastructure needs, the LSP demonstrates the potential for resilient design to meet complex community goals in the face of changing coastal dynamics and repeated storm events.

Moving forward, the next steps for Pasco County include translating the conceptual designs into implementation projects. Detailed permitting considerations and guidelines developed during the LSP phase of the Resilient Pasco Project will provide guidance for navigating regulatory requirements. These resources, aligned with the County's broader resilience framework, will help close gaps exposed by hurricanes and advance a long-term vision of coastal protection that integrates science, policy, and community engagement.



Resilient Pasco Project Living Shorelines Story Map (Source: Halff, 2025)

The Living Shorelines Plan within the Resilient Pasco Project illustrates the power of ecosystem-based approaches to coastal resilience. By combining technical analysis, field observation, innovative design, and collaborative engagement, Pasco County has created a model for communities seeking to protect both natural and built environments. The experiences gained during the planning process, particularly the lessons learned from four hurricane events, provide valuable insights for engineers, planners, and public officials navigating the challenges of coastal adaptation. As the Gulf Coast faces ongoing pressures from sea level rise and storm surge, the County's focus on living shorelines demonstrates a forward-looking path toward safer, more resilient, and ecologically vibrant coastal communities.

Sean Lahav, MPA, WEDG, serves as Associate Vice President and Resilience Market Leader at Halff, a full-service infrastructure consulting firm with offices in Florida, Georgia, Louisiana, Arkansas, Oklahoma, Texas, and Arizona. Drew Sanders, WEDG, serves as Associate Vice President and Environmental Team Leader for Halff. Troy Dorman, PhD, PE, CFM, ENV SP, serves as Vice President and Director of Water Resources and Sustainability at Halff and is also a member of the EWRI Board of Directors.

Development and Application of a Pond Assessment Tool

John S. Gulliver, Poornima Natarajan, Ben D. Janke and Jacques C. Finlay;
University of Minnesota

The Challenge

Ponds are used for stormwater management throughout the world, providing the crucial function of runoff detention and removal of particles and associated nutrients such as phosphorus (P) and other pollutants, mitigating risks of eutrophication of receiving water. As many stormwater ponds are now decades old, their treatment performance may be degraded from accumulating organic matter and encroachment of vegetation, leading to low dissolved oxygen (DO) and sedimentary P release. It has recently been discovered that many stormwater ponds are stratified (McEnroe et al. 2013; Chen et al. 2019; Taguchi et al. 2020; Holgerson et al. 2022; Loewen and Jackson 2023), negating the assumption that ponds, being shallow, are always well-mixed (Walker 1987). Thus, they are like a small lake that is always in the sheltered zone, with a hypolimnion and associated DO and internal P loading concerns (Taguchi et al. 2020). Assessment of pond performance to evaluate the status of existing ponds is needed to determine if management and maintenance could improve function but comprehensive monitoring of stormwater inflows and outflows is expensive, time-consuming, and not a practical option for most watershed managers given the large number of ponds in many cities. Therefore, a substantial need exists to assess the P removal performance of the numerous stormwater ponds in a relatively robust, straightforward, and inexpensive manner.

Development of the Tool

To this end, the Minnesota Local Road Research Board (LRRB) and the Minnesota Stormwater Research Council (MSRC) funded projects at the St. Anthony Falls Laboratory, University of Minnesota, to develop a spreadsheet-based [Pond Assessment Tool](#) (Janke et al. 2023; Natarajan et al. 2025), built on the results of several years of intensive data collection (water chemistry, sediment phosphorus release, development and aggregation of supporting datasets) through multiple research projects funded by the MSRC, LRRB, and others. We have developed an understanding of pond and landscape factors (“risk indicators”) that are strongly associated with high surface water P concentrations and with anoxic sediment P release in ponds treating stormwater. The tool (Figure 1) predicts water column total phosphorus (TP) concentrations and sediment P release rates using regression equations, such as given in Figure 2, and includes capacity to predict pond oxygen status (extent of anoxia), a parameter specifically important for sediment P release. The tool also provides simpler assessment methods relying on classifying levels of risk indicators, i.e., factors such as floating and emergent plant coverage, surrounding soil and land use, and tree canopy cover, which are derived from readily available spatial data, aerial photos, pond drawings, or direct observation, but that do not require extensive sample collection or analysis.

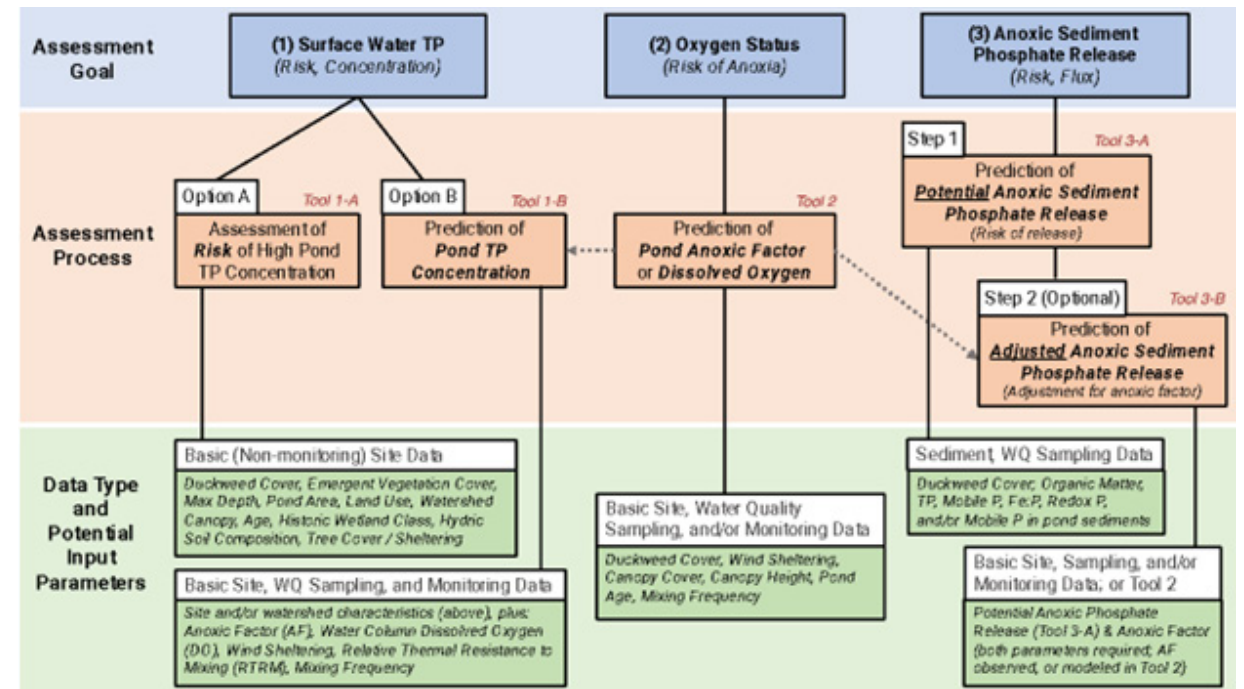


Figure 1. Schematic describing the components of the Pond Assessment Tool for assessing risk of poor phosphorus retention in ponds treating stormwater (Janke et al. 2023).

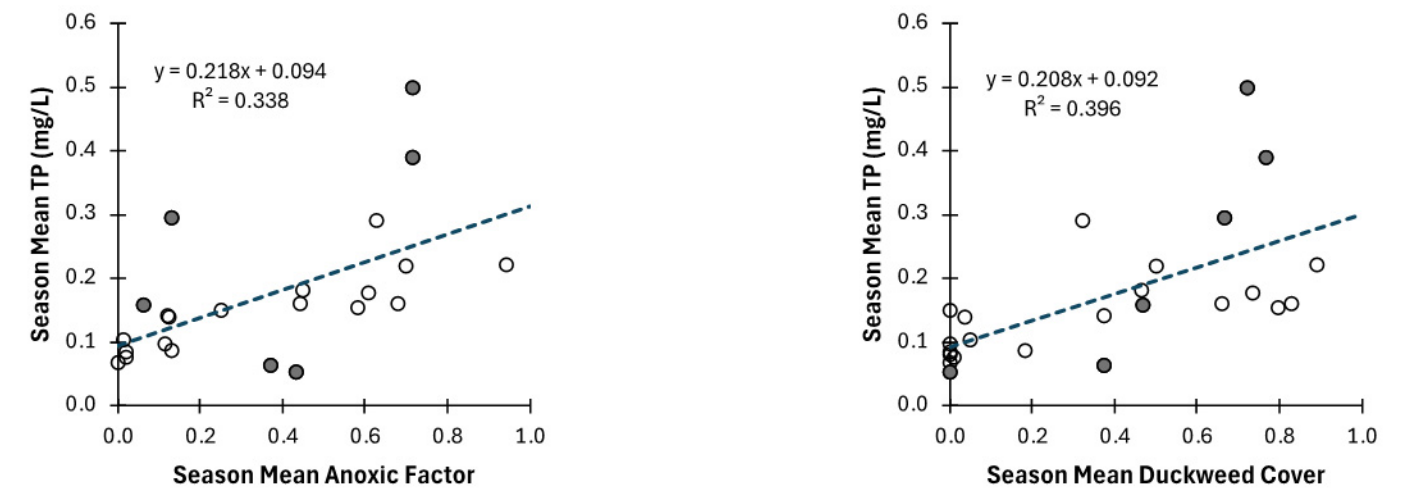


Figure 2. Example relationships in the Pond Assessment Tool. Left: Season mean total phosphorus concentration (TP) vs. anoxic factor (the fraction of season with pond water column DO concentration below 2 mg/L); Right: Season mean TP vs. floating plant cover. Season is a May – October (inclusive) average, while Summer is a June – August average. R2 shown for simple linear regression fits. Dark gray circles indicate sites with higher emergent vegetation cover (30% or more of pond surface area covered by cattails or lily pads).

Application

[The Pond Assessment Tool](#) was developed for stormwater practitioners. The tool supports assessment of many ponds quickly, with results intended to inform monitoring or maintenance strategies for pond P management, and early versions of the tool have been well-received by potential users, consisting of department of transportation staff as well as city, county and consulting staff scientists and engineers. The tool is developed to be easily updated and expanded to realize its potential as a robust and useful screening and assessment method for identifying stormwater ponds in need of further study, maintenance, or other management, especially for phosphorus. Future versions of the tool could be adapted to incorporate new information and predictive relationships

and address hydrologic functions, other pollutants in stormwater, and impacts of retrofits or design practices (e.g., weir skimmers, sand filter benches).

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Harnessing the Power of Artificial Intelligence in Water Engineering: Establishment and Activities of the ASCE-EWRI ML/AI in Water Engineering Task Committee

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Introduction

We are living through a pivotal era in civil and environmental engineering, where data is becoming as fundamental as concrete and pipe networks. In water engineering, the proliferation of sensors, cloud infrastructure, and high-performance computing now make it possible to tackle complexities previously out of reach. Recognizing this moment of convergence, EWRI approved the establishment of the Task Committee on Machine Learning and Artificial Intelligence in Water Engineering at the end of 2024, with the goal of fostering the integration of ML/AI into research and practice across water systems.

Our vision is that AI should not be an exotic add-on, but rather an integral, trusted tool in the water engineer's toolkit—helping to interpret data, augment modeling, guide operations, and strengthen resilience.

Committee Formation and Vision

The Task Committee assembles leading experts from academia, practice, government, and industry to collectively promote AI-enabled water engineering. Key dimensions of our scope include:

- Water Quality & Treatment
- Hydraulics & Hydraulic Infrastructure
- Water Resources Systems & Planning
- Integrated Water Systems (e.g. urban water networks, distribution, reuse, stormwater)

We are committed to (1) catalyzing cross-disciplinary collaboration, (2) guiding responsible use of AI (interpretability, generalization, robustness), (3) advancing educational offerings, and (4) disseminating high-quality work.

For more information or to join the committee, please reach out to Dr. Jie Zhang at jzhang45@kennesaw.edu or visit ai4water.github.io. We look forward to collaborating broadly across our community to shape a future where AI empowers sustainable, resilient water engineering.

Recent Activities

Since our formation, the Task Committee has made significant strides. Below are major initiatives and accomplishments:

1. Special Collection: Machine Learning & AI in Water Treatment

This collection in ASCE Journal of Environmental Engineering invites contributions that merge mechanistic treatment modeling with data-driven tools. Topics include process optimization, digital twins for treatment plants, sensor integration, and predictive control.

Call for Papers: <https://ascelibrary.org/joeeedu/cfp-machine-learning-ai-water-treatment>

2. Special Collection: ML & AI Research in Hydraulics

To complement the water quality side, the committee launched this collection in ASCE Journal of Hydraulic Engineering, targeting flow modeling, sediment transport, flood forecasting, and hybrid physics–ML methods.

Call for Papers: <https://ascelibrary.org/jhend8/cfp-machine-learning-ai-research-hydraulic>

3. Special Collection: Machine Learning & AI in Water Distribution Systems

Our newest initiative is a special collection in Journal of Water Resources Management (JWRM) on the role of ML/AI in integrated water systems. This collection emphasizes methodological innovation and real-world deployment in water supply networks, distribution systems, reuse and recycling, optimization under uncertainty, and cyber-physical system integration.

Call for Papers: <https://ascelibrary.org/jwrmd5/cfp-machine-learning-ai-water-systems>

By launching this third collection, the committee is deliberately expanding its purview from “treatment + hydraulics” to the full systems level—bridging domains and encouraging holistic, end-to-end solutions.

4. Community Outreach & Capacity Building

Beyond publications, we’ve been quite active in community engagement:

- Sessions and mini-workshops at EWRI Congress and other conferences, where practitioners and researchers present case studies on ML/AI applications in water.
- Webinars and panel events to help practitioners build competency in ML tools, workflows, and best practices.
- A developing resource repository, which will host datasets, open-source model code, benchmark tasks, and educational materials accessible to EWRI members and the broader community.

Strategic Insights & Emerging Themes

From reviewing early submissions and engaging with the community, several trends and challenges are surfacing:

- Hybrid modeling (physics + data) is gaining traction: Pure black-box models are often limited by interpretability and extrapolation risk; hybrid methods that embed physical insight within ML architectures are promising directions.
- Generalization and transfer learning remain key hurdles: Models trained in one region or facility often struggle to transfer to another without careful retraining or adaptation.
- Explainability and trust are essential for practitioner adoption: Tools that provide uncertainty quantification, feature importance explanations, or committee/disagreement metrics can help.
- Data quality and infrastructure gaps persist: Many utility datasets remain fragmented, noisy, or inadequately labeled. Supporting data collection and curation is critical.
- Cyber-physical integration and real-time deployment are nascent frontiers: Especially in the JWRM context, integrating real-time sensor data, feedback control, and ML-based decision making is an active research space.

Looking Ahead

As we move forward, the Task Committee plans to:

- Launch benchmark challenges or data competitions tied to hydraulics, treatment, or system domains to crowdsource innovation.
- Encourage multi-institutional collaborations that pair utilities and researchers in co-designing AI tools.
- Develop short courses or modular training (online and in-person) targeted at practicing water engineers who wish to adopt ML/AI workflows.

- Facilitate standards and best practices guidelines around data governance, model validation, reproducibility, and code sharing in water engineering.
- Explore joint topics across the three special collections—for example, hybrid models spanning hydraulics, treatment, and system interactions.
- Ultimately, our ambition is to make AI a well-accepted, robust companion in water engineering—reducing operational risk, improving resilience, and enabling smarter decision support.

Call to the Community

If you are engaged in or interested in ML/AI for water engineering—whether in research, utilities, consulting, or product development—we welcome your involvement. You can contribute by:

- Submitting manuscripts to any of our three special collections
- Serving as a reviewer for any of our three special collections (Please contact the lead guest editor of each special collection)
- Proposing session ideas, workshops, or tutorials for upcoming EWRI events
- Sharing datasets, code, or case studies via our resource repository
- Participating on subcommittees or task groups within the ML/AI Task Committee



World Environmental & Water Resources Congress

Mobile, Alabama | April 26-29, 2026

Save the Date



EWRICongress.org

Joint Committee on Fisheries Engineering and Science: If you restore it, They will swim upstream

Denis Ruttenberg, P.E., Member and Past Chair of Joint Committee on Fisheries Engineering and Science, Associate Engineer, Santa Clara Valley Water District, San Jose, California

The life cycle of migratory fish, such as a salmon, is amazing. A salmon lays eggs in freshwater gravel beds to hatch. Offspring grow up in freshwater streams and then leave the river to the salty ocean. Juveniles grow in the ocean and then return as adults to swim upstream to their natal freshwater streams and rivers to lay eggs, starting the cycle again. Salmon undergo remarkable changes with their gills and kidneys to quickly adapt from fresh water to salt water (smoltification), and vice versa to return to freshwater. Salmon have also evolved other impressive abilities to avoid predators, find cool water, leap instream obstacles, and swim through fast jets of water. However, there are road crossings, diversions, and dams that are barriers to the migration of these threatened and endangered fish. Without salmon and other migratory fish, there are huge losses to fisheries, to resource exchange between the ocean and inland systems, and to cultural values for Indigenous Peoples.



Salmon swimming out of fish ladder at River Mill Dam on the Clackamas River in Estacada, Oregon, 2025, Photo by Peter Christensen.

Given the importance of these migrating fishes (salmon, eels, others), the Joint Committee on Fisheries Engineering and Science was established in 2010 under the EWRI Hydraulics and Waterways Council to improve fish passage and habitat in waterways. As Civil Engineers, we are tasked with projects that interact with the environment and natural processes, finding a balance between human development and long-term sustainability of waterways. We manage the interactions of abiotic and biotic forces to reconcile the needs of natural infrastructure and human infrastructure.

Joint Committee History

The Joint Committee originated in 2010 as an ad hoc initiative per the request of Rollin Hotchkiss, past President of EWRI, to develop a Fish Passage Conference and to link EWRI to AFS-BES to reach a broader network of professionals. Serendipitously, the University of Massachusetts, Amherst (UMASS) was also developing a Fish Passage Conference. Thus, the Joint Committee and UMASS joined forces to organize and present the first Fish Passage Conference in 2011 at UMASS Amherst. Since then, the Joint Committee has grown the local Fish Passage conference to an international event with state-of-the-art science from academia and the professional community. The conference has visited four continents, including North America (2011 to 2025 intermittently), Europe (2015), Australia (2018), and most recently China (2025).



Ice Harbor Fish Ladder at Bonneville Dam on Columbia River, 2017, Photo by Denis Ruttenberg.

The 'Joint Committee' was named to recognize a partnership between EWRI and the Biological Engineering Section of the American Fisheries Society (AFS-BES). Per EWRI goals, the committee provides a nexus between engineers in EWRI and ASCE, biologists within AFS-BES, and other professionals, with the goal to create long term solutions to multi-objective projects in waterways.

Specifically, the mission of the Joint Committee is to: *foster continued communication and promote joint fish passage efforts, with the backing of both the American Society of Civil Engineers' Environmental and Water Resource Institute (ASCE-EWRI) and the Bioengineering Section of AFS (AFS-BES).*

The Joint Committee has also grown other successful task groups. Here are more detailed summaries:

Fish Passage Conference

The Fish Passage conference dates back to 2011 and brings together engineers, biologists and others with interests in ecological connectivity and fish passage. The conference mission is to advance the science and practice of fish passage by providing a forum where researchers, managers, practitioners, and policy makers can share ideas, experiences, and advances. The conference emphasizes integrating cutting edge biology, hydraulics, hydrology, and geology with engineering design and river management to address complex questions on river restoration.

The next Fish Passage Conference will be held from May 4 to May 8 in 2026, at the University of California, Davis and will include workshops, trainings, plenary sessions, and breakout sessions. A call for sessions closes on October 31, 2025 and a call for papers opens November 17, 2025. [Learn more here.](#)

Distinguished Project Award for Fish Passage and Career Award

In association with the conference, the Joint Committee also presents the Distinguished Project Award for Fish Passage. We invite nominations for projects that show innovation, technical excellence, and success in ecological gain for fish passage. Past winners included river and dam projects internationally, all of which demonstrated outstanding success and innovation in fish passage. Nominations are encouraged for projects that inspire others and are shared widely in



Nature-like weir-pool fishway at on Beaver Creek in Methow, Washington, 2006, Photo by Denis Ruttenberg.

professional papers or presentations. [Nominate a project and learn more about past winners.](#)

In addition to the Project Award, the Joint Committee presents a Career Achievement Award at the Fish Passage Conference. This award recognizes an influential professional whose contributions to the field of fish passage have notably enhanced fisheries resources. The link above for the Project Award provides more information.

Fish Passage Webinar Series

Since 2013 the Joint Committee has successfully presented about 50 quarterly webinars on river restoration, dam removal, sediment transport, project planning, and fish passage. There is no fee to attend or watch the recordings, making the presentations accessible to all. The webinar is supported by committee members, volunteers, resources from AFS, and various companies. The next webinar is in December 2026. [Find out more on past webinars, recordings \(YouTube channel\), and register for upcoming webinars.](#)

The Joint Committee invites all interested in fish passage to explore the resources we have developed and attend future events. We also invite new members to the committee. The joint committee is on LinkedIn as the group “Joint Committee on Fisheries Engineering and Science”.

Here are additional web links to explore:

- [Joint Committee Website](#)
- [Fish Passage Training Portal and Checklist](#)
- [Fish Passage Database](#)

Feel free to [reach out to the Joint Committee](#) and thanks on behalf of the fish.



Presentation of Distinguished Project Award to Maine Rivers at the Fish Passage Conference in Quebec City, 2024, Photo by Peter Christensen.

Resources for Engineers and Practitioners on Resilience

Did you know over 50 free videos exist relevant to engineering and climate resilience? These presentations from ASCE-NOAA Task Force on Climate Resilience in Engineering Practice (ASCE-NOAA Task Force) are usually 30 minutes to an hour, including the question and answer component. Representatives from private and public sectors have presented and covered available resources for resilient engineering, known gaps for practicing engineers, or upcoming ASCE standards and other activities.

The two most watched videos are [ASCE 24 - Flood Resistant Design and Construction](#) and [ASCE's Hazard Tool](#). Informative recent videos include [ASTM's Property Resilience Assessment](#) and [Insurance Industry Funded Resiliency Research at IBHS – Crash Testing Buildings for 15 Years](#). Explore the many videos on the [ASCE-NOAA Task Force YouTube Channel](#).

While participating in the ASCE-NOAA Task Force is by invitation, people can sign up for the newsletter. The newsletter not only summarizes upcoming and past presentations but also has articles and news links for practicing engineers and other resilience practitioners. [Subscribe to the newsletter here.](#)

If you have relevant information you wish to be included in a newsletter to over 700 people, email [Meghan Edwards at meghane@umd.edu](mailto:meghane@umd.edu). More information about the [ASCE-NOAA Task Force is available at its website.](#)

Welcome Karen Kabbes, P.E., ENV SP, BC.WRE, F.ASCE – CEC President for 2026!



We're honored to welcome Karen Kabbes as the 2026 President of Civil Engineering Certification (CEC). A trailblazer for women in engineering, Karen brings decades of leadership and innovation in water resources and environmental engineering.

Karen is the founder and president of Kabbes Engineering, Inc. (KEI), a water resources and environmental services firm with offices in Illinois and North Carolina. She is a Board-Certified Water Resources Engineer, an Envision Sustainability Professional, and a Fellow of ASCE.

Her distinguished career includes serving as the 2014 President of ASCE's Environmental and Water Resources Institute (EWRI) and receiving both the Margaret S. Petersen Award for mentoring and the EWRI Lifetime Achievement Award.

Karen also served on the ASCE Board of Direction from 2022–2025 and previously held leadership roles in government including Chief Engineer of the Lake County Stormwater Management Commission, Executive Director of the Fox Waterway Agency, and head of the state of Illinois' Chicago region floodplain regulatory program.

She chaired the ASCE committee that finalized the first Envision Sustainable Infrastructure Rating System and has served on the boards of the Institute for Sustainable Infrastructure and the Association of State Floodplain Managers.

We're thrilled to have her lead CEC into the future! [Learn more about how to become board certified today.](#)



International Low Impact Development Conference
Jacksonville, FL | March 1-4, 2026



Registration for the [2026 International Low Impact Development Conference](#) is now open, and we are excited to welcome you to Jacksonville, FL, from March 1-4, 2026!

This is your opportunity to participate in a national forum presenting the latest developments, technologies and case studies related to LID and green infrastructure technology.

Please note that both the author registration deadline and the advance pricing deadline is November 19, 2025.

Authors are eligible to register with a discounted registration code which will be provided separately by EWRI; municipal / government employees should contact [ASCE Customer Service at registrations@asce.org](mailto:registrations@asce.org) if you are qualified for the municipal rate.



Watershed Management Conference

Reston, VA | August 9-12, 2026

Don't miss your chance to be part of the 2026 Watershed Management Conference!

Join us at the [2026 Watershed Management Conference](#), where professionals from fields like engineering, hydrology, ecology, and environmental science come together to dive into the latest trends and challenges in watershed management. This year, we're shining a spotlight on watershed health and how we can build a more sustainable future.

Check out the topics and submission guidelines, [and submit your abstract by November 19, 2025](#) for review by the Technical Program Committee.

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 provide 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 others are general ASCE awards. The nominations for most of the awards are due October 1st. The Outstanding Projects and Leaders (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!

Society (ASCE) Awards for Career Achievement	
AWARD	COUNCIL
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	Hydraulics and Waterways Council (paper award)
Margaret S. Petersen Award	Interdisciplinary & Education
OPAL Award (Outstanding Projects and Leaders Award)	Planning & Management
Royce J. Tipton Award & Lecture	Irrigation & Drainage
Rudolph Hering Medal	Environmental (paper award)
Samuel Arnold Greeley Award	Environmental (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	Environmental (paper award)
EWRI/ASCE Awards	
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
EWRI Special Achievement & Appreciation Awards	
Outstanding Technical Group/Institute Chapter Award	
Task Committee Excellence Award	
Standards Development Council (SDC) Awards	
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

In Person & Live Online Courses

- [HEC-RAS Computer Workshop](#) | December 17-18, 2025

Live Online Courses

- [Two-Dimensional Modeling Using HEC-RAS](#) | November 17-18, 2025
- [Streambank Stabilization for Restoration and Flood Control Projects](#) | November 19–20
- [Storm Water Ponds: Inflows, Routing, & Outlet Structure Design](#) | December 29-30, 2025

Advance Your Career with Civil Engineering Board Certification

Whether your expertise lies in [water resources engineering](#) or [pipeline engineering–water](#), board certification through ASCE’s Civil Engineering Certification (CEC) program sets you apart as a leader in your field. Board-certified engineers demonstrate advanced technical knowledge, a commitment to staying current with evolving technologies, and a dedication to professionalism, ethics, and lifelong learning.

Watch our recent ASCE eLearning webinars to hear directly from board-certified engineers:

- [Why Make Civil Engineering Certification Part of Your Career Path?](#)
- [Elevate Your Career with CEC and AAWRE’s Board Certification in Water Resources Engineering](#)

[Visit online](#) for details on both programs. Questions? Contact cec@asce.org to learn more about certification in your specialty.

