World Environmental & Water Resources Congress

Milwaukee, WI | May 19-22, 2024

FINAL PROGRAM

EWRICongress.org

On behalf of EWRI and the Congress Organizing Committee, I am honored to welcome you to beautiful Milwaukee, Wisconsin. I am Dr. William Gonwa, a professor and program director for civil engineering at the Milwaukee School of Engineering. I am also the general conference chair of the 2024 World Environmental and Water Resources Congress. I am looking forward to meeting all of you this week during the conference.

This year's conference theme is "**Climate Change Impacts on the World We Live In**". We have an exciting group of keynote speakers who will talk about climate change issues such as: changing design criteria impacts to society; climate migration; resiliency; and impacts to health. We will have a mini-symposia on Sunday focusing on mid-western issues and climate change with some of the top mid-western experts presenting. The mini-symposia continues on Tuesday morning with a special general session on the Great Lakes Impact.

There will be a local case study track that coordinates with three tours highlighting Milwaukee's integrated approach to water quality protection; stormwater management; and flood control. On these tours you will see flood walls; neighborhood relocation; river re-naturalization; a flood control basin and the wetland protection Greanseams® program. All this will be offered to you this week in addition to awards, networking, workshops and (12) concurrent technical sessions of research sharing.

You can download the conference app to help organize your week. We hope that you take advantage of all the opportunities during the EWRI Congress to share your ideas and feedback on issues impacting the environment and our water resources.

This year, the EWRI Congress features some distinguished keynote speakers. The keynote speakers will share their expertise and visions in current water resources and environmental issues at the local, national, and international levels. The keynote speakers include:

- Steve Vavrus, Director, Wisconsin State Climatology Office
- Cavalier Johnson, Mayor of Milwaukee
- Beth Gibbons, Social Governance and National Resilience Lead at Farallon Strategies
- Kevin Shafer, Executive Director, Milwaukee Metropolitan Sewerage District (MMSD)
- Marsia Geldert-Murphey, ASCE 2024 President

Join us at the Sunday night Welcome Reception and mingle with various EWRI council and committee representatives, and our conference sponsors and exhibitors.

Dr. William Gonwa, Ph.D., P.E.
Chair, 2024 EWRI Congress

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Milwaukee School of Engineering

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Schedule-at-a-Glance

Saturday, May 18, 2024

8:00 a.m. - 12:00 p.m.	EWRI Governing Board Meeting (S 101 D)
1:00 p.m. - 3:00 p.m.	EWRI Strategic Planning Meeting (S 101 C)
3:00 p.m. - 8:00 p.m.	Joint Meeting of the Tech ExCom & Member Services ExCom (S 101 E)

Sunday, May 19, 2024

8:00 a.m. – 12:00 p.m.	EWRI Governing Board Meeting (S 101 D)
8:00 a.m. – 12:00 p.m.	Technical Workshop: Curve Number Method: Interpretation, Analysis and Application (RSVP only) (S 101 C)
8:00 a.m. – 5:00 p.m.	Technical Workshop: Environmental Permitting (Lunch on own) (S 102 A)
8:00 a.m. – 5:00 p.m.	Technical Workshop: How to Build Reliability in the Results of Numerical Modeling (Lunch on own) (S 102 B)
12:00 p.m. – 1:00 p.m.	Technical Workshop: Professional Ethics - Introduction and Review (S 102 A)
12:00 p.m. – 6:15 p.m.	Registration
1:00 p.m. – 5:00 p.m.	Technical Tour: Menomonee River Flood Management Projects Bicycle Tour (ticketed event)
1:00 p.m. – 5:00 p.m.	Technical Workshop: Web-based Flood Inundation Modeling with DSS-WISE Web: A Short Course on Recent Updates with Hands-On Training (S 102 C)
1:30 p.m. – 6:30 p.m.	Mini-Symposium on Climate Change and Infrastructure: Emphasis on the Midwest (S 101 C)
6:30 p.m. – 8:00 p.m.	Welcome Reception (ticketed event) (Ballroom B)
8:30 p.m. – 10:30 p.m.	Student Social Meet-up at The Old German Beer Hall {organized by the WDSA Graduate Student Committee} 1009 North Dr. M.L.K. Jr. Drive, Milwaukee

Monday, May 20, 2024

7:30 a.m. – 4:00 p.m.	Registration (Closed for lunch from 12:00 p.m.–1:30 p.m.)
8:00 a.m. – 8:30 a.m.	Welcome and Introduction (Ballroom C & D)
8:30 a.m. – 9:00 a.m.	Recognition of Institute Award Winners (Ballroom C & D)
9:00 a.m. – 9:45 a.m.	Keynote Lectures (Ballroom C & D)
9:45 a.m. – 11:00 a.m.	Historic 1888 Photo Re-Creation: {walk to: 813 E. Kilbourn Avenue, Milwaukee}
11:00 a.m. – 12:00 p.m.	Dedicated Exhibit Hall Hour & Refreshment Break (Ballroom B)
12:00 p.m. – 1:00 p.m.	Luncheon (ticketed event) (Ballroom C & D)
1:00 p.m. – 2:30 p.m.	Concurrent Technical Session I
1:00 p.m. – 4:30 p.m.	Technical Workshop: The Next Generation of SWMM: A Workshop for Stakeholders and Partners (S 101 C)
2:30 p.m. – 3:00 p.m.	Refreshment Break in Exhibit Hall (Ballroom B)
3:00 p.m. – 4:30 p.m.	Concurrent Technical Session II
3:00 p.m. – 6:15 p.m.	Technical Tour: University of Wisconsin School of Freshwater Sciences Tour (ticketed event)
4:30 p.m. – 4:45 p.m.	Transition Break
4:45 p.m. – 6:15 p.m.	Concurrent Technical Session III
6:30 p.m. – 7:30 p.m.	AAWRE 20th Anniversary Board-Certified Water Resources Engineer Induction Ceremony & Meet and Greet (S 101 C)

Tuesday, May 21, 2024

7:00 a.m. – 8:00 a.m.	Coffee and Conversation with the Women-Water Nexus (S 103 D)
8:00 a.m. – 4:00 p.m.	Registration (Closed for lunch from 12:00 p.m.–1:30 p.m.)
8:00 a.m. – 8:05 a.m.	Welcome and Morning Announcements (Ballroom C & D)
8:05 a.m. – 10:15 a.m.	Great Lakes Compact & Chicago Diversion Session (Ballroom C & D)
10:15 a.m. – 11:00 a.m.	Refreshment Break in Exhibit Hall (Ballroom B)

Tuesday, May 21, 2024 (cont.)

11:00 a.m. – 12:00 p.m.	Council Awards
12:00 p.m. – 1:00 p.m.	Luncheon (ticketed event) (Ballroom C & D)
1:00 p.m. – 2:30 p.m.	Concurrent Technical Session IV
1:00 p.m. – 4:30 p.m.	Technical Workshop: Water Hammer in Water Systems: Analysis and Mitigation (RSVP only) (S 101 C)
2:30 p.m. – 3:00 p.m.	Refreshment Break in Exhibit Hall (Ballroom B)
3:00 p.m. – 4:30 p.m.	Concurrent Technical Session V
3:00 p.m. – 6:00 p.m.	Technical Tour: Kinnickinnic River Flood Management Projects Bus Tour (ticketed event)
4:30 p.m. – 4:45 p.m.	Transition Break
4:45 p.m. – 6:15 p.m.	Concurrent Technical Session VI
6:00 p.m. - 9:00 p.m.	Meet-up at The Turf (organized by the Local Activities Council, the New Professionals Council and the EWRI Chicago Chapter} 3rd Street Market Hall: 275 W. Wisconsin Avenue, Milwaukee

Wednesday, May 22, 2024

8:00 a.m. – 3:00 p.m.	Registration (Closed for lunch from 12:00 p.m.–1:30 p.m.)
8:00 a.m. – 8:30 a.m.	Welcome and Morning Announcements (Ballroom C & D)
8:30 a.m. – 9:30 a.m.	Keynote Lecture (Ballroom C & D)
9:30 a.m. – 9:45 a.m.	Refreshment Break (Hallway)
9:45 a.m. – 10:45 a.m.	Concurrent Technical Session VII
11:00 a.m. – 12:00 p.m.	Council Awards
12:15 p.m. – 1:15 p.m.	Luncheon (ticketed event) (Ballroom C & D)
1:15 p.m. – 2:45 p.m.	Concurrent Technical Session VIII
1:30 p.m. – 4:30 p.m.	Technical Tour: Green Stormwater Infrastructure and Greanseams® Walking and Bus Tour (ticketed event)
2:45 p.m. – 3:00 p.m.	Refreshment Break (Hallway)
3:00 p.m. – 4:30 p.m.	Concurrent Technical Session IX
3:00 p.m. – 6:15 p.m.	Technical Workshop: Two-Dimensional Modeling of Structures for Detailed Hydraulic and Sediment Transport Analyses (RSVP only) (Ballroom A)
4:30 p.m. – 4:45 p.m.	Transition Break
4:45 p.m. – 6:15 p.m.	Concurrent Technical Session X

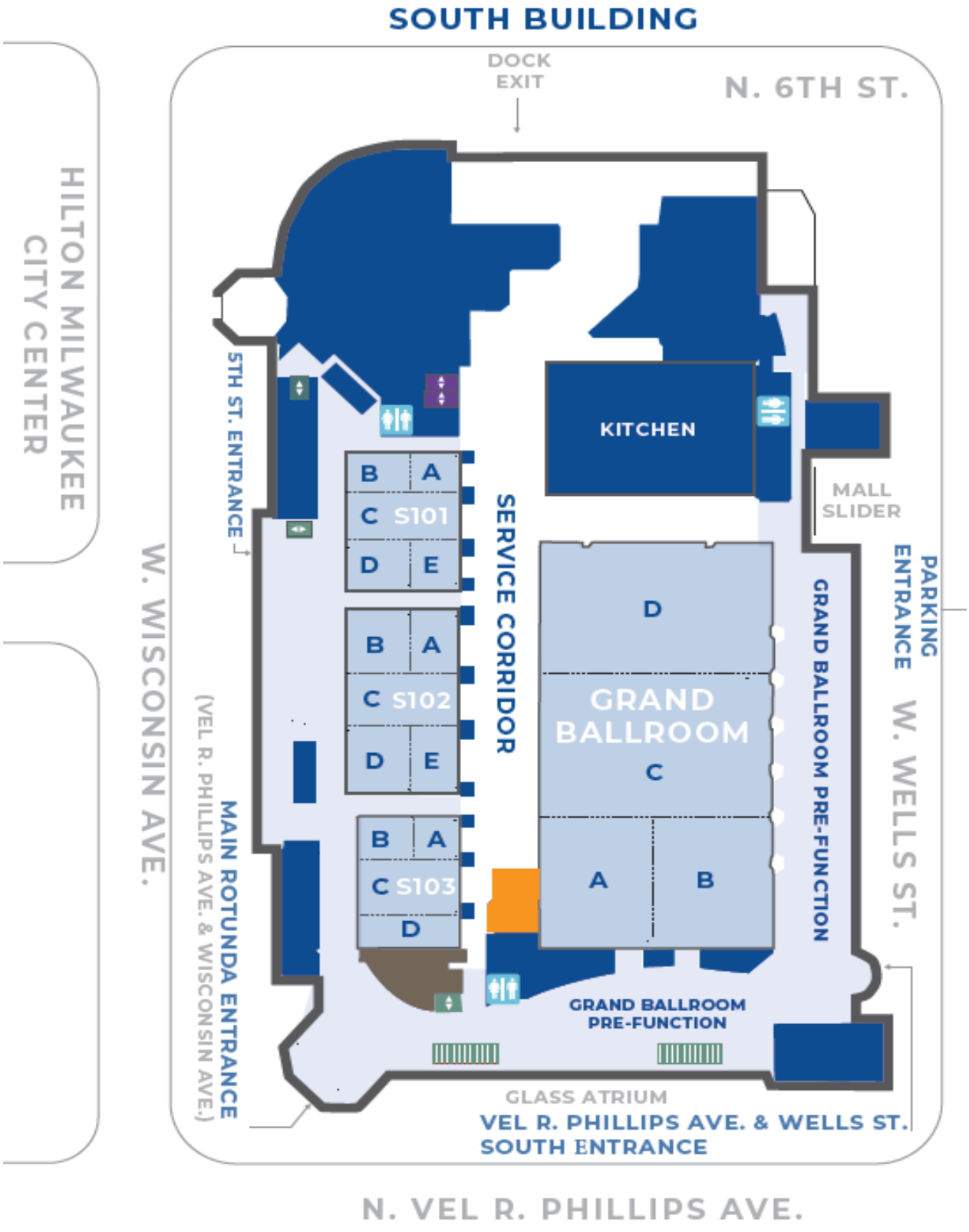
Download the Conference Mobile App

https://cdmcd.co/PnJQqw

1.) Follow URL link or QR code and search for the ASCE Events App.
2.) Install and open the event app
3.) Find the event in the **upcoming events** (bottom row)
4.) Tap the **event icon** to launch the event app
5.) Create a profile / Log in to your profile
6.) You can create a personal schedule by tapping on the star next to the presentation titles.

How will you customize your EWRI Congress experience?

Download the 2024 EWRI Congress mobile app:


SOUTH BUILDING
DOCK EXIT
N. 6TH ST.
HILTON MILWAUKEE CITY CENTER
5TH ST. ENTRANCE
KITCHEN
MALL SLIDER
B A
C S101
D E
SERVICE CORRIDOR
PARKING ENTRANCE
W. WELLS ST.
B A
C S102
D E
D
GRAND BALLROOM
C
GRAND BALLROOM PRE-FUNCTION
W. WISCONSIN AVE.
B A
C S103
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A B
MAIN ROTUNDA ENTRANCE
(VEL R. PHILLIPS AVE. & WISCONSIN AVE.)
GRAND BALLROOM PRE-FUNCTION
GLASS ATRIUM
VEL R. PHILLIPS AVE. & WELLS ST. SOUTH ENTRANCE
N. VEL R. PHILLIPS AVE.

Sunday | May 19, 2024

Technical Workshop: Curve Number Method: Interpretation, Analysis and Application

8:00 a.m. - 12:00 p.m. | S 101 C

The workshop offers the participants fundamental concepts and hands-on activities about the Natural Resources Conservation Service (NRCS) Curve Number (CN) Method used to determine runoff depth, procedures to determine curve number values, and an analysis of this rainfall-runoff model's characteristics, its use, and evolution since its inception.

Technical Workshop: Environmental Permitting (Lunch on own)

8:00 a.m. - 5:00 p.m. | S 102 A

The Sustainability, Resilience, and Project-governance requirements depend on effective environmental permitting. Environmental permitting encompasses accomplishing on air quality, water quality, effective waste handling and disposal, and protection of the soil-environment. The US has the proven legislation, regulation, and underlying policies for effective environmental permitting, via (not-limited-to) the National Environmental Policy Act (NEPA), clean air act (CAA), clean water act (CWA), Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Emergency Planning and Community Right-to-Know Act (EPCRA).

The continual-learning on environmental regulatory requirements including the permitting processes would help support on the sustainability, resilience, and project-governance needs of the hour. This workshop topics will comprehensively include, as follows: air permitting; water-withdrawal approval(s); public water systems (PWSs); municipal and industrial wastewater – National Pollutant Discharge Elimination System (NPDES) and Local permitting; stormwater or wet-weather flow(s) permitting; solid and hazardous waste handling and disposal; oil/chemical and other storage tanks; spill prevention; and, environmental compliance.

Technical Workshop: How to Build Reliability in the Results of Numerical Modeling (Lunch on own)

8:00 a.m. - 5:00 p.m. | S 102 B

Engineering designs and assessments in water and environmental projects are increasingly relying on computational models as an alternative, or supplement, to experimentation. Verification and validation (V&V) and uncertainty quantification (UQ) techniques constitute a set of tools to provide quantitative insight into the reliability of those developed computational models.

This workshop is designed to give the audience a broad view and hands-on experience of V&V and UQ in the context of numerical modeling in water and environmental engineering.

An in-depth introduction to the fundamentals of verification procedures in scientific-computing is the first part of the course. Techniques for validation of models based on measurements and validation experiment design are discussed next. Then, a brief review of techniques for the quantification of uncertainty due to model, numerical techniques and parameters is presented.

The workshop concludes with the emerging techniques of SQA for computational modeling such as "literate programming", "automation of documentation", "version control systems", "reproducibility" etc.

Technical Workshop: Professional Ethics - Introduction and Review

12:00 - 1:00 p.m. | S 102 A

Observation of professional-ethics has become critical more than ever to professionals accomplishing various day-to-day tasks. Updates to the principles or canons of professional-ethics are ongoing as put forward by various professions. The requirements of ethics have been put into practice since the BCE; at the core, the answers to what are ethics?, what is a gift?, what is a profession?, and who is a professional?, need to be well implanted into the professional practice.

Technical Workshop: Web-based Flood Inundation Modeling with DSS-WISE Web: A Short Course on Recent Updates with Hands-On Training

1:00 - 5:00 p.m. | S 102 C

Launched in 2016, the National Center for Computational Hydroscience and Engineering (NCCHE) at the University of Mississippi has been developing and operating the Decision Support System for Water Infrastructural Security (DSS-WISE) Web. Through this free web-based tool, more than 1,800 dam safety professionals have submitted over 68,000 dam-break flood inundation modeling scenarios from across the United States and Puerto Rico.

Researchers at NCCHE have produced numerous developments and improvements to the system to increase the capability, ease of use, and speed for its users. In November of 2021, the DSS-WISE Web development team celebrated the release of Version 3.0, which brought a complete overhaul of the simulation setup and data entry Viewer portal among its new features.

To help new and existing users understand these new capabilities and receive the maximum benefits from the system, a half-day short course will be presented as a conference specialty workshop.

The topics for this course are:

- Introduction/Overview of DSS-WISE Web
- Simulation Scenario Setup Research and Data Entry
- Understanding Simulation Outputs
- Hands on Exercises Using the New System Features
- Tips and Tricks/Advanced Techniques
- Future System Enhancements

Sunday | May 19, 2024 (cont.)

Technical Tour: Menomonee River Flood Management Projects Bicycle Tour (ticketed event)

1:00 - 5:00 p.m.

The Milwaukee Metropolitan Sewerage District (MMSD) implements regional flood management projects in the Milwaukee area. MMSD has implemented a comprehensive system of flood management projects from the headwater of the Menomonee River to its mouth in downtown Milwaukee.

This tour focuses on six projects including levee systems, flood storage basins, and concrete channel rehabilitation projects that together protect Milwaukee residences and industry from flooding while enhancing the environment.

Projects visiting:

- Hart Park and Western Milwaukee Levee System
- Valley Park Levee
- Underwood Creek Concrete Lining Removal

Mini-Symposium on Climate Change and Infrastructure: Emphasis on the Midwest

1:30 - 6:30 p.m. | S 101 C

The mini-symposium will provide a forum for researchers and practitioners to discuss climate change response, focusing on the Midwest. It will emphasize applications of future climate rainfall data and combined flooding issues driven by Great Lakes water level fluctuation, and also planning and community impact topics specific to the Midwest. The main EWRI Congress will have many papers on climate change impacts on water resources and environmental engineering, but the mini-symposium will offer an opportunity for Midwest participants to get together on Sunday afternoon to exchange ideas.

The mini-symposium will be divided into three panel discussions:

- **Development of "actionable" future climate rainfall data, experience from the Midwest**
- **Examples of Infrastructure Adaptation to Future Climate**
- **Planning for the Future - Equity in Planning and Climate Migration**

Each session will include a panel discussion, and we will conclude with a general discussion among all participants focusing on data gaps, opportunities, access, and potential future actions that could be especially relevant to the Midwest.

Sunday | May 19, 2024 (cont.)

Welcome Reception *(ticketed event)*

6:30 - 8:00 p.m. | Ballroom B

Whether it's "welcome back" or "it's a pleasure to meet you", we are thrilled to see you in Milwaukee! We hope you can join us for the welcome reception and take the opportunity to reunite with old friends or create new memories. This is also a great opportunity to meet representatives from one of our numerous councils and committees.

Graduate Student Meet-up

8:30 - 10:30 p.m. | at the Old German Beer Hall

1009 North Dr. M.L.K Jr. Drive in Milwaukee

Monday | May 20, 2024

Welcome & Keynote Session

8:00 - 9:45a.m. | Ballroom C & D

Steve Vavrus, Ph.D.
Director, Wisconsin State Climatology Office

"Climate Science and How It Informs Future Design Conditions"

Water resource managers are increasingly faced with the difficulty of basing design decisions on a moving target of climate conditions. Although these challenges vary by location, some of the most relevant climate changes in this context are more intense rainfalls, greater precipitation variability, and altered cold-season meltwater hydrology. In some cases, climatologists are confident about the sign of these changes but much less so about their magnitude.

How can engineers and managers incorporate the latest climate science into their decision-making? In keeping with the adage of "forewarned is forearmed," this presentation will provide an overview of observed historic and projected future climate changes, particularly those that most strongly impact infrastructure design.

Historic 1888 Photo Re-Creation

9:45 - 11:00 a.m.

Please join us in recreating a historic 1888 photo of the ASCE 20th Annual Convention that took place right here in Milwaukee, WI.

Bring your walking shoes, because we will be walking to **813 E. Kilbourn Avenue**, the site of the original photo (taken outside of the Women's Club of Wisconsin).

Once lost to history, we now know many of the ASCE members who took part in a photograph commemorating its 20th annual convention in 1888 – including two identifications that likely push back the record of women and minorities as members of the Society.

This historic photo, taken by photographer Hugo Broich in 1888, portrays the attendees of the American Society of Civil Engineers 20th Annual Convention in Milwaukee, Wisconsin.

Monday | May 20, 2024 (cont.)

Monday Luncheon & Keynote

(ticketed event)

12:15 - 12:45 p.m.| Ballroom C & D

Cavalier Johnson
Mayor, City of Milwaukee

"Milwaukee's Commitment to Replace Lead Service Lines"

There are an estimated 9.2 million lead service lines remaining in the United States. Many of these are in the Great Lakes region, with a combined 555,000 lead service lines concentrated in Milwaukee, Chicago, and Detroit alone. The worthy goal of eliminating the risk of lead exposure via drinking water cannot be achieved nationally without expediting replacement in Great Lakes communities with the heaviest lead burdens. In Milwaukee, we made a commitment to reach the EPA's 10-year Timeline to replace all lead service lines and launched an Equity Prioritization Plan, ensuring our most vulnerable communities will be served.

Technical Workshop: The Next Generation of SWMM: A Workshop for Stakeholders and Partners

1:00 - 4:30 p.m. | S 101 C

The Storm Water Management Model (SWMM) is used throughout the world for planning, analysis, and design related to stormwater runoff, combined and sanitary sewers, and other drainage systems. SWMM predicts runoff quantity and quality from drainage systems, and is used by communities, consulting engineers, and many EWRI members as part of their innovative research.

This workshop will gather SWMM developers - including the Center for Infrastructure Modeling and Management, Inc. (CIMM) who recently completed SWMM 5+, the U.S. Environmental Protection Agency, private sector companies, and others – SWMM users from academia, government, and the private sector, as well as others who are invested in the future of SWMM.

The purpose of the workshop will be to share information about recent improvements to SWMM, discuss future needs for SWMM including in the areas of flood modeling and real-time digital applications, consider options for the ongoing maintenance and development of SWMM, and build the community of SWMM stakeholders.

This workshop will also report out on what has been accomplished since the 2018 SWMM Visioning Summit sponsored by EWRI, NCIMM, and EPA in Reston, VA.

Monday | May 20, 2024 (cont.)

Technical Tour: University of Wisconsin School of Freshwater Sciences Tour (ticketed event)

3:00 - 6:15 p.m.

The School of Freshwater Sciences at the University of Wisconsin-Milwaukee is the first school in the nation dedicated solely to the study of freshwater and the largest academic research institution on the Great Lakes.

The tour will take a closer look at this state-of-the-art facility and learn how, for more than 50 years, the faculty and scientists have been conducting internationally recognized freshwater research across five essential themes: human and ecosystem health, freshwater system dynamics, weather and climate science, freshwater technology, and freshwater policy and economics.

The walking tour is about 90 minutes and focuses on research being conducted by our faculty, scientists, and students.

AAWRE 20th Anniversary Board-Certified Water Resources Engineer Induction Ceremony & Meet and Greet

6:30 - 7:30 p.m. | S 101 C

Come and join us for this special event to help celebrate the latest group of board-certified water resources engineers and learn how you can get board certified. All are welcome to attend.

Tuesday | May 21, 2024

Coffee and Conversation with the Women-Water Nexus

7:00 - 8:00 a.m. | S 103 D

Join the Women-Water Nexus Committee for Coffee & Conversation on the topic of "Living Life Throughout a Successful Career". Let's move beyond work-life balance and discuss strategies for intertwining a fulfilling life with a successful career. All are welcome to attend.

Tuesday | May 21, 2024 (cont.)

Plenary Session: Great Lakes Water Management

8:00 - 10:15 p.m. | Ballroom C & D

The tremendous water resource of the Great Lakes has been degraded by water quality and ecological impacts, but progress has been made in recent decades.

The plenary session on Great Lakes water management will provide an overview on current issues on the lakes, and descriptions of water diversion projects governed under the Great Lakes compact and also under the Chicago diversion approval.

The presenters will participate in a closing panel discussion on managing future conditions, inviting participation from attendees.

The panel discussion experts will cover these topics:

- **Great Lakes Issues and Development of the Compact**
- **Waukesha Diversion Completed Under Great Lakes Compact**
- **Monitoring the Chicago Diversion**
- **City of Chicago-Joliet Water Agreement**

Council Awards

11:00 a.m. - 12:00 p.m.

- **Environmental Council Awards | S 101 C**
- **Simon W. Freese Award & Lecture | S 101 C**
- **Hydraulics & Waterways Council Awards | S 102 C**
- **Hans Albert Einstein Award & Lecture | S 102 C**
- **Urban Water Reseources Research Council Awards | S 103 C**
- **Margaret S. Petersen Award & Lecture | S 103 C**

Tuesday Luncheon & Keynote

(ticketed event)

12:15 - 12:45 p.m.| Ballroom C & D

Beth Gibbons
Social Governance and National Resilience Lead at Farallon Strategies

"Introducing the 5th National Climate Assessment MW Chapter & Bringing Climate Into Your Work"

Beth will provide an overview of the 5th National Climate Assessment, with special emphasis on the Midwest Chapter, of which she is a contributing author. The presentation will highlight how the NCA can be a resource for bringing climate change information into our day-to-day work. Additionally, as the former Executive Director of the American Society of Adaptation Professionals, Beth will share insights on how we train the next generation of climate professionals in engineering and beyond.

Tuesday | May 21, 2024 (cont.)

Technical Workshop: Water Hammer in Water Systems: Analysis and Mitigation with Hands-On Training

1:00 - 4:30 p.m. | S 101 C

Hydraulic transients, commonly known as water hammer, pose a serious threat to water systems, as they can cause catastrophic failures such as pipe bursts and significant damage to pumps and valves. Simulating hydraulic transients remains challenging due to the nonlinearity of governing equations, the uniqueness of every water system, and the dynamics of system operation.

This workshop will introduce the fundamentals of hydraulic transients in laymen's terms and the two widely used numerical methods of Method of Characteristics (MoC) and Wave Characteristic Method (WCM) in terms of their benefits and applicability. It will also detail a typical procedure to build a well-represented transient simulation model and cover some common pitfalls along with it. Surge protection strategies will be evaluated for both existing and new water systems. Each surge protection device type will be discussed from the perspective of applicability.

In the final section, the participants will use InfoSurge Pro, an extension of InfoWater Pro, to go through some well-designed hands-on exercises and, as a result, gain the capability to deliver a transient modeling project with great confidence.

Technical Tour: Kinnickinnic River Flood Management Projects Bus Tour

3:00 - 6:00 p.m.

The Milwaukee Metropolitan Sewerage District (MMSD) implements regional flood management projects in the Milwaukee area. MMSD and area partners have developed a plan for the Kinnickinnic River watershed, Milwaukee's most urban watershed, to reduce flood risk for over 700 homes and businesses, naturalize over 7 miles of concrete lined streams, and revitalize community spaces.

MMSD and the Sixteenth Street Community Health Centers (SSCHC) will lead a tour through several project areas, in design or completed, on the Kinnickinnic River.

This will include the recently completed Pulaski Park project which removed 1,700 feet of concrete channel and restored the river to a natural stream within the park. The tour will highlight the various partnerships between MMSD, city of Milwaukee, Milwaukee County, SSCHC and others to engage the community throughout the life of these projects; transforming the river from a liability to a community asset.

Tuesday | May 21, 2024 (cont.)

JOIN US FOR SOME FUN & GAMES!

Tuesday, May 21st
6-9 PM
3rd St Market Hall
275 W Wisconsin Ave
Milwaukee, WI 53203

Hosted By
Local Activities Council,
New Professionals Council,
& Chicago EWRI Chapter

Meet us at The Turf for an exciting gathering featuring games including Giant Jenga! Whether you are new to EWRI or a seasoned member, come get to know fellow members and explore opportunities to get involved with EWRI Committees and Local Chapters.

This gathering is all about fun with no official sponsors. It's a bring-your-own-wallet party!

Wednesday | May 22, 2024

Wednesday Morning Keynote

8:30 - 9:30 a.m.| Ballroom C & D

Kevin Shafer, P.E.
Executive Director, Milwaukee Metropolitan Sewerage District (MMSD)

"Managing Water and Wastewater at the Watershed Scale"

Changing climates will disproportionately impact all our water resources. Flooding, increased sewer overflows, reduced water quality and drought are all likely outcomes. To reduce this impact, we need to start managing this resource at the watershed scale. The Milwaukee Metropolitan Sewerage District has been transforming to this new paradigm for over 20 years. This presentation will focus on this new paradigm.

Wednesday | May 22, 2024 (cont.)

TRACK SPOTLIGHT

Local Program: Milwaukee, Wisconsin

The EWRI Congress Local Program track highlights amazing local water resources projects all day. To begin the day and the Local Program track, attend the morning keynote address delivered by Kevin Shafer, P.E., Milwaukee Metropolitan Sewerage District's (MMSD's) Executive Director.

Follow the local program throughout the day to learn about more great Milwaukee area water resource initiatives including:

9:45 - 10:45 a.m. | Ballroom C & D

- **Greenseams® and Working Soils®: Regional Efforts to Protect Headwater Floodplains, Hydric Soils, and Farmland**
- **City of Milwaukee Green Storm Water Infrastructure Planning and Implementation: A Tale of Two Departments**

1:15 - 2:45 p.m. | Ballroom C & D

- **The Milwaukee Estuary Area of Concern (AOC) Dredged Material Management Facility (DMMF) – Enabling $450M in Industrial Legacy Contaminated Sediment Cleanup**
- **Public Engagement for the Milwaukee Estuary Area of Concern (AOC) Projects: Developing a Consistent Public Engagement Theme for Seemingly Unrelated Projects Spanning Multiple Rivers and Counties**
- **Milwaukee Estuary Area of Concern (AOC) Restoration Projects: Aquatic Habitat Restoration, Fish Passage, and More**

3:00 - 4:30 p.m. | Ballroom C & D

- **MMSD's Green Storm Water Infrastructure Implementation Goals and How Implementation has Benefited from a Public Private Partnership (P3)**
- **MMSD Climate Resilient Watersheds Metrics Tracking ProgramSeemingly Unrelated Projects Spanning Multiple Rivers and Counties**
- **Menomonee River Flood Management**

4:45 - 6:15 p.m. | Ballroom C & D

- **Flood Management and Rehabilitation of the Kinnickinnic River**
- **Milwaukee Riverkeeper: Championing Community Engagement to Protect and Improve Milwaukee Area Waterways**
- **Integrated Stream Restoration, Floodplain, and Regional Park Improvements in Milwaukee**

Wednesday | May 22, 2024 (cont.)

Council Awards

11:00 a.m. - 12:00 p.m.

- **Planning & Management Council Awards | S 101 C**
- **Julian Hinds Award & Lecture | S 101 C**
- **Irrigation & Drainage Council Awards | S 102 C**
- **Royce J. Tipton Award & Lecture | S 102 C**
- **Watershed Council Awards | S 103 C**
- **Ven Te Chow Award & Lecture | S 103 C**

Wednesday Luncheon & Keynote

(ticketed event)

12:15 - 12:45 p.m.| Ballroom C & D

Marsia Geldert-Murphey, P.E., F.ASCE
ASCE President 2024

"Engineering the Future"

With an expanding global population, we must take care of our aging infrastructure to meet current needs, and at the same time, move it into the future with innovative technologies and capabilities that will enable us to combat the problems of tomorrow. In this presentation, ASCE President Marsia Geldert-Murphey will share how we need to prepare future civil engineers to meet these challenges.

As the oldest engineering society in the United States, ASCE represents 150,000 members in 177 countries. ASCE stands at the forefront of a profession that plans, designs, constructs, and operates society's economic and social engine – the built environment – while protecting and restoring the natural environment.

Wednesday | May 22, 2024 (cont.)

Technical Tour: Green Stormwater Infrastructure and Greanseams® Walking and Bus Tour (ticketed event)

1:30 - 4:30 p.m.

The Milwaukee Metropolitan Sewerage District (MMSD) has two programs to capture rainfall where it falls in both urban and undeveloped areas.

In undeveloped areas, MMSD's Greenseams® program has protected 5,300 acres of undeveloped land in watershed headwaters with a goal of protecting 10,000 acres.

In urban areas, MMSD has a goal of capturing 0.5" of rainfall in green stormwater infrastructure throughout the MMSD service area.

Tour stops will highlight green storm water infrastructure implemented by the city of Milwaukee and other local partners along with a Greenseams® property that has preserved park and open space in the greater Milwaukee area.

Technical Workshop: Two-Dimensional Modeling of Structures for Detailed Hydraulic and Sediment Transport Analyses

3:00 - 6:15 p.m. | Ballroom A

Over the past ten years the application of two-dimensional (2D) numerical model techniques for simulation of hydraulic conditions in rivers, floodplains, reservoirs and estuaries has become much more commonplace. The numerical engines SRH-2D (USBR) and HEC-RAS 2D (USACE) specifically, have seen widespread application.

As the community has become more aware of the capabilities of these engines, additional applications and tools have continued to evolve. With more and more new, or less experienced users engaging in developing 2D hydraulic models, it is important to emphasize the different modeling approaches and methods that are used for different applications.

Therefore, this workshop will focus on 2D model development for the analysis of detailed hydraulics and sediment transport through structures, including bridges, culverts, weirs, and other natural instream structures (i.e., engineered log jams).

Best modeling practices for detailed hydraulic structure analyses will be illustrated using the SRH-2D engine with the Surface-water Modeling System (SMS) interface, but they apply to other model engines as well. Key topics will include mesh generation for representation of culvert and bridge structures, specification of model parameters for various structures, extracting hydraulic parameters for bridge scour evaluation, and evaluating sediment transport through structures. An overall review of best modeling practices and model review will also be included.

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EWRI Committee Meetings

The full listing of the EWRI committee meetings occurring during the week, can be found online in the EWRI Congress mobile app.

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Founded by ASCE, Civil Engineering Certification is the only professional credential developed by civil engineers, for civil engineering. It recognizes civil engineers who have demonstrated advanced knowledge and skills in a specific specialty area, bringing more value to civil engineering stakeholders.
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CivilGEO, a Wisconsin-based company, develops advanced civil engineering and environmental modeling software to help engineer, design, and build the world's infrastructure.
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Leveraging the membership of Community Engineering Corps' alliance partners, we bring more than 200,000 technical professionals and students together to serve communities across the United States. These individuals volunteer their time and expertise to assist communities that do not have the resources to access engineering services. With a strong commitment to community-driven projects, our volunteers work alongside community members to design solutions to identified problems.
Visit: https://www.communityengineeringcorps.org/

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Pyramid Geophysical Services offers experience in a full line of geophysical capabilities including: hazardous waste sites, underground storage tanks, landfills, groundwater studies, and geotechnical investigations. **Visit:** https://pyramidgeophysics.com/

Van Essen Instruments – USA | Conference Exhibitor
Van Essen Instrument provides many products including Divers which are submersible dataloggers for long-term uninterrupted, real-time water level monitoring using a pressure sensor when submergered at a fixed level under the water surface.
Visit: https://www.vanessen.com/

Visit Anchorage | Cooperating Organization & Conference Exhibitor
The EWRI Congress will take place in Anchorage, Alaska in 2025. Anchorage is the perfect Alaskan getaway. Find sparkling glaciers, abundant wildlife, vast parks and trails, and dazzling northern lights. A trip to Anchorage opens doors to the best of Alaska, all in one place.
Visit: https://www.anchorage.net/

Wisconsin Initiative on Climate Impacts | Cooperating Organization
The Wisconsin Initiative on Climate Change Impacts (WICCI) is a statewide collaboration of scientists and stakeholders formed as a partnership between UW-Madison's Nelson Institute for Environmental Studies and the Wisconsin Department of Natural Resources. WICCI's goals are to evaluate climate change impacts on Wisconsin and foster solutions.
Visit: https://wicci.wisc.edu/

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SCAN ME

Margaret S. Petersen Award & Lecture

For an outstanding woman in environmental and water resources.

Ayse Kilic, Ph.D., M.ASCE

Dr. Kilic has been a professor of Civil Engineering and School of Natural Resources at the University of Nebraska, Lincoln, NE since 2004. She is a pioneering and accomplished researcher, teacher and professional enthusiast in irrigation and drainage engineering systems. Dr. Kilic has helped lead the evolution of national and global production of satellite-based irrigation water consumption mapping and has been strategic in evolving new spatial structures in computer applications for irrigation.

Dr. Kilic's contributions include more than seventeen years of development work on the METRIC spatial evapotranspiration (ET) model. The METRIC model is widely used in irrigation water management and water rights management throughout the western USA and abroad and has been adopted as the ET model of choice in quantifying irrigation water consumption by the competing states of Colorado, Wyoming, Utah and New Mexico in the Upper Colorado River Basin . Dr. Kilic is a primary science team member of the OpenET consortium. OpenET provides free access to satellite-based field-scale ET information for much of the United States.

In addition to METRIC in OpenET, Dr. Kilic has been a leader for the development of the Google EEFlux version of METRIC that provides free web-based production of ET information https://eeflux-level1.appspot.com/. Ayse was a member of the national Landsat Science Team from 2012-2017, a member of the NASA Energy and Water Cycle Science Team, and is a current member of the NASA ECOSTRESSS Science Team and OpenET Science Team. She has worked with NASA and USGS to develop specifications for thermal imagers on future Landsat satellites and created the Google GEARUP App for mapping and conserving water in residential and agricultural landscapes http://residentialwateruse.appspot.com/ on the Google Earth Engine.

Dr. Kilic has pioneered transformational developments to geographic information system (GIS) applications for water resources and hydrologic systems and she has trained hundreds of undergraduate and graduate students to use these developments. Dr. Kilic is an innovative, enthusiastic, and effective teacher in GIS, hydrology, water resources, irrigation mapping and spatial analyses. She teaches university courses in Surface Hydrology, GIS in Water Resources, GIS and Remote Sensing in Natural Resources, and Python Programming in Natural and Water Resources.

Dr. Kilic has served as Team Leader of the Environmental Science Mission Area of the School of Natural Resources at UNL and has helped to create and chair the ASCE-EWRI Task Committee on Remote Sensing of Evapotranspiration. She has served as chair of the ASCE-EWRI Technical Committee on Evapotranspiration in Irrigation and Hydrology. She has M.S. and Ph.D. degrees in Agricultural and Biological Engineering from the University of Florida.

Lifetime Achievement Award

The Lifetime Achievement Award is presented to members who are judged to have advanced the profession, exhibited technical competence, and significantly contributed to public service, research, or practice in the environmental and water resources profession.

Rao S. Govindaraju, Ph.D., P.E., BC.WRE, F.EWRI, Dist.M.ASCE

Rao S. Govindaraju is the Bowen Engineering Head and the Christopher B. and Susan S. Burke Distinguished Professor in the School of Civil Engineering at Purdue University. He earned his Ph.D. in civil engineering from the University of California, Davis, in 1989. His primary areas of research include surface and subsurface hydrology, contaminant transport, watershed hydrology, and climatic influences.

He is interested in developing algorithms for analyzing and learning from hydrologic data. He specializes in problems dealing with uncertainty and spatial variability. His research work has been supported by various agencies such as NSF, EPA, DOD, and DOE. He has chaired national level committees, and has served on the editorial boards of several journals. He served as the Editor-in-Chief of Journal of Hydrologic Engineering, American Society of Civil Engineers (2012-2022), and as the President of American Institute of Hydrology (2017-2018). His work has been recognized with numerous national and international awards.

Deborah Lee, P.E., P.H., BC.WRE, ENV SP, F.ASCE

Ms. Deborah Lee is the director of NOAA's Great Lakes Environmental Research Laboratory (GLERL), conducting integrated scientific research on the Great Lakes and coastal ecosystems. In addition to her role as director of GLERL, Ms. Lee serves as NOAA's Regional Team Lead for the Great Lakes, facilitating collaboration across a network of more than 800 NOAA employees and partners representing the agency's diverse capabilities across the region. To her position at GLERL, Ms. Lee brings 35 years of professional experience in water resources research and management at NOAA and the U.S. Army Corps of Engineers. She is the Past President of the Environmental Water Resources Institute, representing 20,000 water resources professionals.

To her position at GLERL, Ms. Lee brings 35 years of professional experience in water resources research and management at the U.S. Army Corps of Engineers and NOAA. Prior to her current assignment, she served as the Chief of Water Management for the Great Lakes and Ohio River Division of the U.S. Army Corps of Engineers from 2001 to 2014. In that role, she directed lower Ohio and Mississippi River flood control and oversight of Great Lakes regulation. During that time, she served a detail as the Acting Regional Business Director and Dam and Levee Safety Officer from July 2013 to July 2014. Ms. Lee is a licensed professional engineer, certified professional hydrologist, and board-certified by the American Academy of Water Resources Engineers. She has received multiple awards, including three Superior Civilian Service Awards, certificates of appreciation from the International Joint Commission and the Mississippi River Commission, International Joint Commission Award of Merit for Professional Contribution, and the 2017 NOAA Research Inclusion and Diversity Award. Ms. Lee holds bachelor's and master's degrees in civil engineering from The Ohio State University and completed post-graduate civil and environmental engineering studies at the University of Michigan.

Robert Pitt, Ph.D., P.E., BC.WRE, M.ASCE

Bob Pitt is the Emeritus Cudworth Professor of Urban Water Systems in the Department of Civil, Construction, and Environmental Engineering at the University of Alabama. Prior to his 28-year academic career, he was a senior engineer in industry and government for 16 years and continues to consult on review committees and research projects. He has conducted research concerning the effects, sources, and control of urban runoff and has written more than 100 publications, including journal articles, book chapters, research reports, and several books.

He is a registered Engineer (WI), a Board-Certified Environmental Engineer by the American Academy of Environmental Engineers, and a Diplomate of the American Academy of Water Resources Engineers. He has served on numerous professional committees in the U.S. and abroad. He and his graduate students have conducted research on integrating green infrastructure controls in combined sewer areas; construction site erosion characterization and control, characterization and treatment of emerging contaminants in wet weather flows; stormwater treatment using media filtration; urban PAH sources and fates in marine waters; heavy metal releases from drainage system components; groundwater impacts from stormwater infiltration; beneficial uses of stormwater in times of changing weather; sources and fate of indicator bacteria in urban areas; and continued work on enhancements to the Source Loading and Management Model (WinSLAMM).

Jeffrey B. Bradley Service to the Institute Award

The Jeffrey B. Bradley Service to the Institute Award is given in recognition of extensive and outstanding service to the Institute.

Karen Kabbes, P.E., ENV SP, BC.WRE, F.ASCE

Karen is a current member of the ASCE Board of Direction, having been elected as a Society Director by ASCE's Institute members. A founding member of EWRI, she was the 2014 President. Her involvement in EWRI started through the IL Section's EWRI Chapter. Karen was asked to join a national ASCE committee by Cecil Lue-Hing, a past EWRI and IL Section ASCE President. That led to her involvement in ASCE's Water Resources Planning and Management Division, and ultimately EWRI. Initially a member of the EWRI members services committee, she used her Congress attendance as an opportunity to seek out and join EWRI technical committees within her technical interest area.

A past state and local water resources official and agency head, Karen is the founder of Kabbes Engineering, a multi-disciplinary water resources and environmental engineering consulting firm. Karen has been a frequent presenter in the past at EWRI Congresses often describing her company's project application of technical approaches learned from other EWRI members' research presentations. She is a Board-Certified Water Resources Engineer, an ASCE Fellow and chaired the ASCE Committee that created the Envision Infrastructure Rating System. Karen's involvement in EWRI and ASCE is fueled by her passion to see the cutting-edge work of ASCE and EWRI active members and researchers disseminated and adopted by the engineering practice community.

Visiting International Fellows

This fellowship is granted annually to increase the participation of water resources and environmental professionals from developing countries in EWRI conferences, and to promote sustained professional and cultural exchange.

To apply for the 2025 Visiting International Fellowship, visit: bit.ly/40T2vH2

Ayla Bilgin, Ph.D., M.ASCE
Country: Turkey
Dr. Ayla Bilgin is an associate professor in the Department of Environmental Engineering at Artvin Coruh University in Turkey. She serves as the head of the environmental engineering department and the vice dean of the engineering faculty.

Her postdoctoral research was completed at Princeton University in 2016-2017. Her research areas are water quality, water pollution treatment technologies, water management, biological treatment and anaerobic treatment and environmental management.

Ebissa Gadissa Kedir, Ph.D., S.M.ASCE
Country: Ethiopia
Dr. Ebissa Gadissa Kedir is a research associate in the Department of Civil and Environmental Engineering at Wayne State University, United States. He received his Ph.D. in civil engineering from the Indian Institute of Technology Roorkee, (India) in 2024.

Dr. Ebissa has published his research work in various international peer-reviewed journals and conferences. His research activities are mainly in the fields of hydraulic modeling; water resources planning and management; groundwater engineering & sustainable management; wastewater treatment; hydrologic analysis and design.

Babar Naeem
Country: Pakistan
Mr. Babar Naeem Ph.D. scholar, Mehran University of Engineering and Technology, Jamshoro, Pakistan. Proven educational and professional record in integrated water resource management. Served in academic institutes like US-Pak Centre for Advance Studies in Water (USPCAS-W) and professional organizations like the Associated Consulting Engineering (ACE).

He has (16) years of experience in GIS; remote sensing; flood risk modeling & mapping; planning & management; geographic information systems; spatial data analysis; and hydrological, hydraulic and computational fluid dynamic modeling.

2024 Class of EWRI Fellows

EWRI Fellowship is granted to those who have been a member of EWRI for 10 or more years and have demonstrated accomplishments that have contributed significantly to the advancement or application of water resources or environmental engineering , science, and technology.

Ramesh Agarwal, Ph.D., F.EMI, F.ASCE, F.EWRI
Drew Baird, Ph.D., P.E., BC.WRE, F.EWRI
Rajagopalan Balaji, Ph.D, F.ASCE, F.EWRI
James Bonta, Ph.D., P.E. (retired), PH (Emeritus), F.ASCE, F.EWRI
Deva Borah, Ph.D., P.E., F.ASCE, F.EWRI
Steve Burian, Ph.D., P.E. , F.EWRI
Jennifer Duan, Ph.D., P.E., BC.WRE, A.M.ASCE, F.EWRI
Donald K. Frevert, Ph.D., P.E., BC.WRE (Ret.), F.ASCE, D.AAWRE, F.EWRI
Jonathan Keck, Ph.D., P.E. , F.EWRI
Xiaofeng Liu, Ph.D., P.E. , F.EWRI
John Jairo Ramirez-Avila, Ph.D., Ing, PH, M.ASCE, F.EWRI
Jery R. Stedinger, Ph.D., NAE, Dist. Member ASCE, AGU Fellow, F.EWRI

Royce J. Tipton Award & Lecture

The Royce J. Tipton Award recognizes outstanding contributions to the advancement of water and soil aspects of irrigation by software development, promoting application of new technologies and through public and professional service.

Ayse Kilic, Ph.D., M.ASCE
Dr. Kilic's full biography can be found in the description of the Margaret S. Petersen Award.

Journal of Irrigation and Drainage Engineering

Best Reviewer

Manish Pandey, Ph.D.

Best Associate Reviewer

Giuseppe Oliveto, Ph.D.

Best Discussion

Davide Wüthrich, Ph.D.
Rui Shi, Ph.D.
Hubert Chanson, Ph.D.

For the Discussion of "Transverse Nonuniformity of Air-Water Flow and Lateral Wall Effects in Quasi-Two-Dimensional Hydraulic Jump," Journal of Irrigation and Drainage, Volume 149, Issue 4, 2023

Best Technical Note

Erik I. Anderson, Ph.D.

"Yield Equations for Bed-Mounted Infiltration Galleries," Journal of Irrigation and Drainage, Volume 149, Issue 10, 2023

Best Paper Award

Dawit Zerihun, Ph.D.
C.A. Sanchez, Ph.D.
Andrew N. French, A.M.ASCE

"Derivation of the Penman-Monteith Equation with the Thermodynamic Approach. I: A Review and Theoretical Development,"
Journal of Irrigation and Drainage Engineering, Volume 149, Issue 5, 2023

Hunter Rouse Hydraulic Engineering Award and Lecture

The Hunter Rouse Hydraulic Engineering Award is presented, upon recommendation of the Executive Committee of the Environmental & Water Resources Institute Hydraulics & Waterways Council, to a distinguished person in the field of hydraulic engineering.

Willi Hermann Hager, Ph.D., P.D., F.ASCE
Willi H. Hager was given the title of Professor on November 12, 1998. He lectured on scientific methods in dam hydraulics and Wastewater hydraulics at ETH Zurich. He had several Ph.D. students and collaborated extensively with international researchers. He retired as an Emeritus Professor on July 31, 2016.

Born on July 8th, 1951, he studied civil engineering at ETH with a diploma in 1976. After 7 years of engineering practice and a Ph.D. thesis submitted to VAW in 1981, he was a scientific collaborator of the Chaire de Constructions Hydrauliques at the Swiss Federal Institute of Lausanne (EPFL). From 1989 to 1998, he was head of the scientific staff of VAW, from when he took over as research head, and as a member of the VAW Direction until his retirement in 2016.

His principal research interests include engineering hydraulics in wastewater technology, hydraulic structures, and natural disasters. In total, 25 books and nearly 600 papers published mainly in review journals are available. Research projects sponsored by the Swiss National Science Foundation included cascade flows, dam-break waves, impulse waves, and scour processes. In addition, sewer flows received particular research attention.

He was the recipient of the VSA Award for Mobile Discharge Measurement in 1986, and the J.C. Stevens Award in 1988, the Best Practice Paper Award, and the Best Technical Note Award in 1994, all of the American Society of Civil Engineers (ASCE). The International Association for Hydro-Environment Engineering and Research (IAHR) presented him the Ippen Award in 1997. He is a Fellow ASCE, an Honorary member of IAHR since 2013, and was the Secretary of its Hydraulic Structures Section. He further was a member of the Swiss Engineers and Architects (SIA), the Swiss Wastewater Association (VSA), and a Member of working group 1.2.2 of Abwassertechnische Vereinigung (ATV), Germany. He is married and father of three daughters.

Karl Emil Hilgard Hydraulic Prize

The Karl Emil Hilgard Hydraulic Prize is presented to the author or authors of the paper that is judged to be of superior merit in dealing with a problem of flowing water, either in theory or in practice.

Byron Andres Guerrero Hinjosa
Martin F. Lambert, M. ASCE
Rey C. Chin

"Extension of the 1D Unsteady Friction Model for Rapidly Accelerating and Decelerating Turbulent Pipe Flows,"
Journal of Hydraulic Engineering, Volume 29, Issue 9, 2022

Hydraulic Structures Medal

The Hydraulic Structures Medal is awarded to an individual or individuals for significant contributions to the advancement of the art and science of hydraulic engineering as applied to hydraulic structures.

M. Hanif Chaudhry, Ph.D., P.E., P.Eng, BC.WRE, Dist.M.ASCE
Dr. Hanif Chaudhry has received his BSc. with Honors in Civil Engineering from the University of Engineering and Technology, Lahore, Pakistan in 1965 and his MASc. and PhD in Civil Engineering from the University of British Columbia, Vancouver, Canada in 1968 and 1970. Since 2007 he has been serving at the University of South Carolina as Associate Dean (International Programs – College of Engineering and Computing) and Distinguished Professor of Civil Engineering (since 2019).

Dr. Chaudhry was awarded many important prizes and awards, including a Doctor Honoris Causa title by the Universidad Polytecnica de Valencia (1999), ASCE Distinguished Member (2016), and the Hunter Rouse Hydraulic Engineering Award (2008). His research grants and contracts include NSF, FHWA, USAID, EPA, and Corps of Engineers. Dr. Chaudhry has acted as a consultant in all six continents to organizations such as the United Nations, UNDP, US AID, US Army Corps of Engineers, California Department of Water Resources, NASA Langley, Inter-American Development Bank, and the World Bank. He is the author of books such as Applied Hydraulic Transients and Open-Channel Flow.

Hans Albert Einstein Award

This award acknowledges the significant contribution to the engineering profession in the areas of erosion control, sedimentation, and/or waterway development either in teaching, research, planning, design, or management.

Stanford Gibson, Ph.D., A.M.ASCE
Dr. Stanford Gibson is the sediment specialist at the Hydrologic Engineering Center (HEC) where he has worked for twenty years. He is responsible for implementing the sediment transport capabilities in the Corps of Engineers' 1D open channel hydraulics model, HEC-RAS. Dr. Gibson also regularly applies these capabilities in support of ecosystem restoration, flood risk management, reservoir, and navigation projects.

Dr. Gibson has a Ph.D. in Hydraulic Engineering from UC Davis, and graduate degrees in Geotechnical Engineering, Restoration Ecology, and Theology. Stanford was the 2020 USACE, Flood and Coastal Researcher of the Year, the employee of the year at HEC and Institute of Water Resources Employee in 2018, a 2018 Fulbright Specialist, and was the 2017 USACE practitioner of the year in the hydrology, hydraulics and coastal Community of Practice. Dr. Gibson has authored over 60 technical publications including more than 15 in peer review journals.

Journal of Hydraulic Engineering

Best Paper Award

Please refer to the Karl Emil Hilgard Hydraulic Prize.

Best Case Study

E. John List, Ph.D., P.E., F.ASCE

"Contaminant Dispersion and Breakthrough in Groundwater Flow: Case Study in Maui, Hawaii,"
Journal of Hydraulic Engineering, Volume 148, Issue 12, 2022

Best Technical Note

Alireza Nowroozpour, Ph.D., M.ASCE
Robert Ettema Ph.D., P.E., F.ASCE
Alireza Fakhri

"A Reassessment of Contraction Scour at Bridge Waterways,"
Journal of Hydraulic Engineering, Volume 148, Issue 12, December 2022

Best Discussion

Please refer to the J.C Stevens Award.

Best Reviewer

Gustavo de Almeida
Georges Kesserwani
Sebastian Schwindt
Virgilio Fiorotto

Best Associate Editor

Michele Palermo, Ph.D.
Oscar Castro-Orgaz, Ph.D.

Simon W. Freese Environmental Engineering Award & Lecture

The Simon W. Freese Environmental Engineering Award and lecture is awarded to a distinguished person in the field of environmental engineering.

Mark R. Wiesner, Ph.D., P.E., NAE, F.ASCE
Wiesner earned a B.A. degree in 1978 from Coe College, Cedar Rapids, IA; an M.S. degree in civil and environmental engineering in 1980 from the University of Iowa; and a Ph.D. in 1985 from Johns Hopkins University. Wiesner came to Duke in 2006 from Rice University and helped found the Center for the Environmental Impacts of Nanotechnology (CEINT) in 2008, which he now directs. CEINT brings together institutions and researchers from around the world to explore the relationship between a vast array of nanomaterials— from natural, to manufactured, to those produced incidentally by human activities— and their potential environmental exposure, biological effects and ecological impacts.

Wiesner's research focuses on membrane processes, nanostructured materials, transport and fate of nanomaterials in the environment, colloidal and interfacial processes, and environmental systems analysis. In 2010, he helped demonstrate that nanomaterials accumulate in living organisms and can become more concentrated the further up the food chain they go, revealing the potential impacts nanotechnology could have on the environment.

His research leadership has earned him accolades that include the 2011 NWRI Athalie Richardson Irvine Clarke Prize for excellence in water research and the 2004 Association of Environmental Engineering and Science Professors (AEESP) Frontiers in Research Award. He co-edited/authored the book "Environmental Nanotechnologies" and serves as Associate Editor of the journals Nanotoxicology and Environmental Engineering Science and Co-editor of the journal Desalination. In 2004, Dr. Wiesner was named a "de Fermat Laureate" by the French Polytechnic Institute and French National Institute for Applied Sciences. He is a Fellow of the American Society of Civil Engineers and a Fellow of the American Association for the Advancement of Science.

Rudolph Hering Medal

This award recognizes outstanding papers that contribute to the advancement of the environmental branch of the engineering profession.

Anna Raschke
A. Pouyan Nejadhashemi
Vahid Rafiei
Nicolas Fernandez
Afshin Shabani
Shu-Guang Li, F.ASCE

"Opportunities and Challenges of Integrated Large-Scale PFAS Modeling: A Case Study for PFAS Modeling at a Watershed Scale'"
Journal of Environmental Engineering, Volume 148, Issue 9, 2022

Wesley W. Horner Award

The Wesley W. Horner Award recognizes papers that have contributed to the areas of hydrology, urban drainage, or sewerage.

Gulizhaer Abulikemu
Jatin H. Mistry
David G. Wahman
Matthew T. Alexander
Alison R. Kennicutt, Ph.D., A.M.ASCE
Jacob D. Bollman
Jonathan G. Pressman

"Investigation of Chloramines, Disinfection Byproducts, and Nitrification in Chloraminated Drinking Water Distribution Systems,"
Journal of Environmental Engineering, Volume 149, Issue 1, 2023

Samuel Arnold Greeley Award

The Samuel Arnold Greeley Award is presented for excellence in papers on the design, construction, operation, or financing of water supply pollution control, storm drainage, or refuse disposal projects.

Saeed Keshani Langroodi
Christopher M. Sales
Chetan Jinadatha
Gregory Fridman

"Tolerance Increase in Escherichia coli O157:H7 and Methicillin-Resistant Staphylococcus Aureus USA300 Exposed to Low-Power Continuous Ultraviolet Radiation from Narrow-Wavelength Sources,"
Journal of Environmental Engineering, Volume 149, Issue 6, 2023

Journal of Hazardous, Toxic and Radioactive Waste

Best Research Oriented Paper

Faraji Najarkolaie
Michelle Bensi, Ph.D., A.M.ASCE
Allison C. Reilly, Ph.D., A.M.ASCE

"Short-Term and Long-Term Inundation Risk Insights for Contaminated Sites in the U.S.,"
Journal of Hazardous, Toxic and Radioactive Waste. Volume 27, Issue 3, 2023

Best Practice Oriented Paper

Jyoti K. Chetri, S.M.ASCE
Krishna R. Reddy, F.ASCE
Dennis G. Grubb, M.ASCE
Stefan J. Green

"Biogeochemical versus Conventional Landfill Soil Covers: Analysis of Gas Flow Profiles, Microbial Communities, and Mineralogy,"
Journal of Hazardous, Toxic and Radioactive Waste. Volume 26, Issue 3, 2022

Best Associate Editor

Munwar Basha, Ph.D.

Journal of Sustainable Water in the Built Environment

Best Paper

Adrienne G. Donaghue, Ph.D.
Sarah Beganskas, Ph.D.
Erica R. McKenzie, Ph.D.

"Inverted versus Raised: The Impact of Bioretention Underdrain Height on Internal Water-Storage Hydraulics,"
Journal of Sustainable Water in the Built Environment, Volume 8, Issue 1, 2021

Best Case Study

Lucie Worthen, EIT
Christa Kelleher, Ph.D.
Cliff Ian Davidson, Ph.D., F.ASCE

"A Diagnostic Analysis of Low-Impact Development Simulations with SWMM,"
Journal of Sustainable Water in the Built Environment, Volume 8, Issue 2, 2022

Urban Water Resources Research Council Outstanding Service Award

Robert Traver, Ph.D., P.E., BC.WRE, F.EWRI, F.ASCE

Ven Te Chow Award & Lecture

The Ven Te Chow Award recognizes lifetime achievement in the field of hydrologic engineering.

Ana P. Barros, Ph.D., P.E., BC.WRE, F.ASCE, NAE
Dr. Ana P. Barros is the Donald Biggar Willett Chair of Engineering and Professor and Head of Civil and Environmental Engineering at the University of Illinois Urbana-Champaign. She is also the Edmund T. Pratt, Jr. School Distinguished Emeritus Professor at Duke University. Her primary research interests are in Hydrology, Hydrometeorology and Environmental Physics. Her research relies on intensive field and laboratory experiments, satellite-based remote sensing, computational modeling, and environmental informatics. Dr. Barros is the past President of the Hydrology Section of the American Geophysical Union, she was Chair of Atmospheric and Hydrospheric Sciences of AAAS, and she served in the Council of the American Meteorological Society. She served as Chief Editor of the Journal of Hydrometeorology, and she is an Editor of AGU Advances and PNAS NEXUS. Prof. Barros was elected to the UCAR Board of Trustees in 2022 and she serves in the ASCE Industry Leadership Council. She is a Fellow of AGU, AMS, ASCE and AAAS, a senior member of IEEE, and a member of the National Academy of Engineering since 2019.

Arid Lands Hydraulic Engineering Award

The Arid Lands Hydraulic Engineering Award recognizes original contributions in hydraulics, hydrology, planning, irrigation and drainage, hydroelectric power development, navigation applicable to arid or semi-arid climates, or contributions to the understanding and development of new technology in river basins.

Juan B. Valdes, Ph.D., P.E., F.ASCE, F.AGU
Dr. Juan B. Valdés obtained his Ph.D. in Water Resources at the Massachusetts Institute of Technology in 1976, his MS in Civil Engineering at MIT in 1975 and his Civil Engineering degree at the Catholic University of Cordoba (Argentina) in 1970. He is currently a Professor Emeritus in the Department of Hydrology and Atmospheric Sciences at the University of Arizona. He also held courtesy appointments in Civil Engineering and the Arid Lands GDP and the Global Change GIDP. Previously he was the Director of the NSF Science and Technology Center SAHRA (Sustainability of Semi-Arid Hydrology and Riparian Areas) at the University of Arizona (2008-2010), a Professor and Head of the Department of Civil Engineering and Engineering Mechanics (1997-2008). He has also held academic and administrative positions at Simon Bolivar University (Caracas, Venezuela, 1976-1987) and at Texas A&M University (1987-1997) and he was a visiting professor at MIT in 1982-83, the Polytechnic University of Valencia (2011) and University of Castilla-La Mancha (2010).

He is a Fellow of the American Society of Civil Engineers and of the American Geophysical Union, a corresponding member of the National Academy of Engineering of Argentina and is a member of the International Water Academy and the UNESCO Chair in Hydrogeological Risks (based at the University of the Americas-Puebla, Mexico). He is also a founding member of the UNESCO Level II Center ICIWaRM (International Center of Integrated Water Resources Management). The project concentrated in the use of remote sending methods to supplement local information for the planning and management of water resources systems in semi-arid regions in Africa. This approach was also applied in the World Bank funded project in the western part of the Kingdom of Saudi Arabia.

He is a registered Professional Engineer in Texas. He is a consultant to the World Bank, InterAmerican Development Bank among others private and public organizations.

His main area of research is in the hydrology of semi-arid regions having worked at the SSAHRA (Sustainability of Semiarid Hydrology and Riparian Areas), a National Science Foundation Research Center with 19 institutions of higher education, government, NGOS and the Mexican Institute of Water Research (IMTA). He was a Co-Pi of the Center since its inception and was the Director of the Center during the period 2007-2019. The Center had 19 organizations in the US and Mexico. He was also the Principal Investigator of a NASA-funded project SWAAT to evaluate and develop decision making tools for the planning and management of water resources in several parts of Africa in collaboration with a regional Center located in Nairobi (Kenya).

Journal of Hydrologic Engineering

Seminal Paper

Rao S. Govindaraju, Ph.D., Dist.M.ASCE
Ben Zhang, Ph.D.

"Artificial Neural Networks in Hydrology. I: Preliminary Concepts and II: Hydrologic Applications,"
Journal of Hydrologic Engineering, Volume 5, Issue 2, 2000

Best Technical Paper

Tao Huang, S.M.ASCE
Venkatesh Merwade, Ph.D., M.ASCE

"Uncertainty Analysis and Quantification in Flood Insurance Rate Maps Using Bayesian Model Averaging and Hierarchical BMA,"
Journal of Hydrologic Engineering, Volume 28, Issue 2, 2023

Best Case Study

Chythanya Krishnan, Ph.D.
Amai Mahesha, Ph.D., M.ASCE

"Regional Trends and Spatiotemporal Analysis of Rainfall and Groundwater in the West Coast Basins of India,"
Journal of Hydrologic Engineering, Volume 27, Issue 8, 2022

Best Discussion

Venkatesh Uddameri, Ph.D., M.ASCE
Discussion of "Nonoverlapping Block Stratified Random Sampling Approach for Assessment of Stationarity" by Ramesh S. V. Teegavarapu and Priyank J. Sharma, Journal of Hydrologic Engineering, Volume 27, Issue 9, 2022

Best Associate Editor

Roseanna M. Neupauer, Ph.D., M.ASCE

Best Technical Note

David A. Chin, Ph.D., F.ASCE

Julian Hinds Award and Lecture

The Julian Hinds Award recognizes the author or authors of a paper that is judged to make the most meritorious contribution to the field of water resources development. The award may also be made to an individual for notable performance, long years of distinguished service, or specific actions that advanced engineering in the field of planning, development, and management of water resources.

Steven Buchberger, Ph.D., P.E., M.ASCE

Steven G. Buchberger is professor emeritus of civil engineering at the University of Cincinnati. His research focused on urban water resources and hydrology with recent emphasis on estimating peak water demands in buildings including development of the Water Demand Calculator. During a 35-year career at UC, Steve advised 70 graduate students and post-docs, authored over 140 archived publications, directed nearly $13 million in research projects, and served as department head for seven years. He is a founding member of the ASCE Premise Plumbing Modeling task group. Three of his students have won national best paper awards from the American Society of Civil Engineers. Steve earned his PhD in civil engineering at the University of Texas-Austin and is a Registered Professional Engineer in Colorado.

Water Resources Planning and Management Council Service to the Profession

This award recognizes and honors a person for outstanding leadership, activities, and achievement in service to the profession in the field of water resources planning through the institute, councils, local sections, or other organizational units of the society.

Yves Filion, Ph.D., P.Eng (Ontario), BC.WRE, M.ASCE

Dr. Yves Filion is a Professor of Environmental Engineering at Queen's University in Kingston, Canada. Dr. Filion is an Associate Editor with the ASCE Journal of Water Resources Planning & Management. His research examines the physical, chemical, and biological mechanisms that drive the accumulation of metals in drinking water pipes.

He is the president of Hydro-Systems Consulting and is a licensed professional engineer (P.Eng.) with 20 years of research and consulting experience in municipal and environmental engineering. Dr. Filion's expertise in hydraulics is routinely sought by PEO, scientific advisory committees for international conferences in water distribution network modelling, and the Natural Science and Engineering Research Council (NSERC) to review scientific proposals.

Journal of Water Resources Planning and Management

Best Research Oriented Paper

Charles Rougé S.M.ASCE
Andrés Peñuela, Ph.D., EIT, A.M.ASCE
Francesca Pianosi

"Forecast Families: A New Method to Systematically Evaluate the Benefits of Improving the Skill of an Existing Forecast." Journal of Water Resources Planning and Management, Volume 149, Issue 5, 2023

Reproducibility Author Award

Meghna Thomas
Lina Sela

"MAGNets: Model Reduction and Aggregation of Water Networks"
Journal of Water Resources Planning and Management, Volume 149, Issue 2, 2022

Outstanding Efforts to Reproduce Results

Anthony Castronova
Md Atif Ibne Haidar

Reproducibility Associate Editor Award

Mashor Housh, Ph.D.

Quentin Martin Best Practice Oriented Paper

Hui Wang, M.ASCE
Nisai Wanakule, M.ASCE
Tirusew Asefa, F.ASCE
Solomon Erkyihun, M.ASCE
Leon Basdekas
Richard Hayslett

"Application of Multiobjective Optimization to Provide Operational Guidance for Allocating Supply among Multiple Sources."
Journal of Water Resources Planning and Management, Volume 149, Issue 4, 2023

Best Policy Oriented Paper

Sarah Fletcher, A.M.ASCE
Antonia Hadjimichael, Aff.M.ASCE
Julianne Quinn, A.M.ASCE
Khalid Osman, S.M.ASCE
Matteo Giuliani
David Gold, A.M.ASCE
Anjuli Jain Figueroa, A.M.ASCE
Bethany Gordon, S.M.ASCE

"Equity in water resources planning: a path forward for decision-support modelers."
Journal of Water Resources Planning and Management, Volume 148, Issue 7, 2022

Seminal Paper

Thomas Walski
E. Downey Brill, Jr.
Johannes Gessler
Ian C. Goulter, Ph.D., P.E., F.ASCE
Roland M. Jeppson (Deceased)
Kevin Lansey
Han-Lin Lee
Jon C. Liebman
Larry Mays, Ph.D.
David R. Morgan
Lindell Ormsbee

"Battle of the Network Models: Epilogue."
Journal of Water Resources Planning and Management, Volume 113, Issue 2, 1987

Best Reviewer

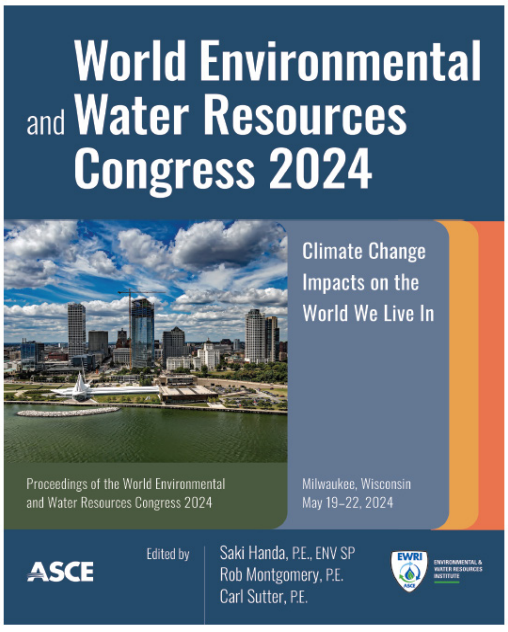
Steven C. McCutcheon (retired), Ph.D., P.E., BC.WRE, F.EWRI, F.ASCE

Outstanding Institute Chapter

Houston Chapter *(Outstanding Large Chapter)* **& East Central Chapter (Florida)** *(Outstanding Small Chapter)*

Walter L. Huber Civil Engineering Research Prize

Xing Xie, Ph.D., P.E.
Saman Razavi, Ph.D., A.M.ASCE



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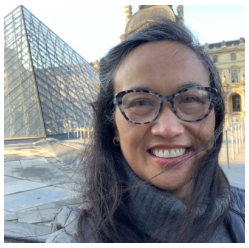

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