

American Water Resources Association National Capital Region Section

## 2024 National Capital Region Water Resources Symposium

## Federal Funding Access for Emerging Water Resources and Water Infrastructure Challenges

**Friday, April 12, 2024** 8:00 a.m. – 5:00 p.m.

University of the District of Columbia (UDC) UDC Student Center – Level 1 4200 Connecticut Ave., NW, Washington DC 20008

### Introduction

This one-day symposium brings together experts from governmental agencies, academia, the private sector, and non-profits to present and discuss innovations in water research, technology, policy, and management to respect and reflect the value of water in the National Capital Region, as well as nationally and internationally. We hope that you will make the most of the opportunity to meet other water resources professionals across the region.

The National Capital Region, encompassing the District of Columbia, and parts of Maryland, Virginia, and West Virginia, has unique and challenging opportunities for sustainable and resilient management of water resources and infrastructure. The region makes up a large portion of the watershed for the Chesapeake Bay, the largest estuary in the U.S; contains rivers which provide for the water needs of nearly six million people; and hosts many organizations and entities that consider water resources as their primary focus. The role of the AWRA-National Capital Region Section is to focus water resources professionals on water resources issues in the National Capital Region.

The 2024 Water Resources Symposium theme is **Federal Funding Access for Emerging Water Resources and Water Infrastructure Challenges**, which is an essential topic that will be discussed by our featured speakers during the plenary session.



## **Featured Speakers**

#### **Opening Keynote Speaker**



#### **Panelists**

**Ben Grumbles** is Executive Director of the Environmental Council of the States (ECOS), the national nonpartisan nonprofit association of the top appointed environmental official for each of the 50 states, DC, and the territories. From 2015 to May 2022, he was Secretary of the Environment for Maryland, serving as Chair of the Governor's Chesapeake Bay Cabinet and the Maryland Climate Change Commission and Executive Committee Member of the Regional Greenhouse Gas Initiative. Grumbles has also served as President of the US Water Alliance, Director of Arizona Department of Environmental Quality, US EPA Assistant Administrator for Water, and Senior Staff and Counsel for the Transportation and Infrastructure and Science Committees in the U.S. Congress. He is an appointed advisor to the Division of Earth and Life Studies within the National Academies (Sciences, Engineering, Medicine) and a graduate of Wake Forest University, Emory University Law School (JD), and The George Washington University Law School (LLM).



**Michael Deane** 











Dr. Michelle M. Lorah

Samantha A. Medlock



**Michael Deane** is Chief of the Clean Water State Revolving Fund program with the U.S. Environmental Protection Agency. Prior to returning to EPA, he was the Executive Director of the National Association of Water Companies, the organization representing private water utilities and operating companies in the U.S. Before joining NAWC in 2009, he was Associate Assistant Administrator for Water in the EPA where he played a key role in developing and implementing national water policy. Previous to his appointment to EPA in 2006, he served as an executive at several water management companies, including SUEZ and Veolia, where he focused on innovative financing and infrastructure policy. He holds a Master of Environmental Management degree from the Duke University Nicholas School of the Environment and his bachelor's degree in biology and geography from Gustavus Adolphus College.

**Mary Kay (MK) Foley, P.E., PMP,** is currently the Center Director of the US Geological Survey Maryland-Delaware-DC Water Science Center (WSC). The WSC includes approximately one hundred scientists and technicians engaged in collecting and interpreting water data including surface water, groundwater, water use, and water quality. High profile projects include Chesapeake Bay water quality trend analysis, National Water Quality Assessments, and data collection and analysis for multiple Federal, State, County, local governments, and research partners. Mary Kay is responsible for science direction, and all financial, human capital, and technology management for the Center. Mary Kay joined the USGS in 2015 after twenty-three years with the US Army. Mary Kay spent eleven years with the US Army Corps of Engineers (Buffalo District) working as hydrologist, project engineer, and project manager for water resource and hazardous waste cleanup projects. She spent twelve years working for the Army in Germany as Environmental Division Chief at the Army Garrison Mannheim, and as the US Army European Region Cleanup program manager in Sembach Germany. She received her Bachelor's and Master's Degree in Civil Engineering from SUNY Buffalo, and is a licensed Professional Engineer and certified Project Management Professional.

**Becky Hammer** is a Senior Attorney and the Deputy Director of Federal Water Policy for NRDC (the Natural Resources Defense Council). She uses litigation and advocacy to ensure safe and sufficient water for all, with a special emphasis on wastewater and stormwater infrastructure funding and regulation, wetland protections, nature-based climate solutions, and other Clean Water Act issues. Becky also serves as the director of NRDC's Brewers for Clean Water campaign. Prior to joining NRDC in 2009, Becky interned at the U.S. Environmental Protection Agency. Becky is a graduate of Harvard College and Harvard Law School. She is based in Washington, DC.

**Dr. Michelle M. Lorah** is a Research Hydrologist at the U.S Geological Survey (USGS) MD-DE-DC Water Science Center where she leads the Fate and Bioremediation Team. Michelle has extensive experience in studying biodegradation processes and determining environmental factors controlling fate of organic contaminants. Her research has led to the development and testing of bioremediation technologies. Michelle has a central role in PFAS research at the USGS as a co-lead for the national PFAS Integrated Science Team under the Environmental Health Program and a co-lead of the Northeast Region PFAS Capability Team. Current studies are predominantly focused on PFAS fate and transport for several USGS programs, the Department of Defense, and USEPA. These studies benefit from multiple collaborations with academia and private companies through Water Resources Research Act grants, Cooperative Ecosystem Studies Unit grants, and a Cooperative Research and



Development Agreement. She received a Ph.D. in Environmental Chemistry through the Marine-Estuarine-Environmental Sciences Program at the University of Maryland, M.S. in Environmental Science from the University of Virginia, and B.S. in Geosciences and Marine Science from Penn State.

**Samantha A. Medlock** serves as the Assistant Administrator for Resilience Strategy, overseeing policy, doctrine, strategy, and evaluation efforts for the entire FEMA Resilience organization. The mission of Resilience is to prepare communities, reduce suffering, and speed recovery. Prior to joining executive service, Ms. Medlock was senior counsel to the House of Representatives Select Committee on the Climate Crisis during the 116th and 117th Congresses, leading work on resilience, adaptation, and preparedness, including managing the Committee's science, public health, infrastructure, housing, finance, and national security portfolios. She joined the Committee from a private sector role in climate risk management, insurance, and finance. Ms. Medlock served as a senior advisor in the White House Office of Management and Budget and deputy director in the Council on Environmental Quality, coordinating resilience policy across the Executive Office of the President and the Administration, modernizing federal flood policy, and steering partnerships with local leaders and the private sector. Ms. Medlock has more than 25 years of experience in land use and disaster law and policy, and has testified in Congress on flood risk, levee safety, and resilient recovery from disasters. She is a recipient of the Army Commander's Award for Public Service for her service on the National Committee on Levee Safety created by Congress after Hurricane Katrina.

#### Luncheon Keynote Speaker



**Charles Fishman** is a journalist and author who has over the last decade become one of the most forceful, challenging and inspiring public voices on water issues, speaking everywhere from MIT and UCLA to Hershey Chocolate and the U.S. State Department. Fishman's book, "The Big Thirst: The secret life & turbulent future of water," has become the best-selling water book in a generation and is changing how people think about water and how they manage it. "The Big Thirst" does something few water books do — it restores a sense of wonder about water, along with a sense of urgency. Fishman, a former reporter for The Washington Post, is the author of three other New York Times bestsellers, "One Giant Leap," about how we got to the Moon in the 1960s; "The Wal-Mart Effect," about Wal-Mart's impact on how we live; and "A Curious Mind," about the power of curiosity, with Hollywood producer Brian Grazer. Fishman grew up in Miami, Florida, and graduated from Harvard. He lives in northwest Washington, DC, with his wife, also a journalist; a two-foot-wide creek runs through their backyard.



### April 12, 2024, NCR Water Symposium Program UDC Student Center – Level 1

8:00 a.m.	~~ REGISTRATION ~~	Auditorium
8:45 a.m.	Opening & Welcome	Auditorium
	• <b>Dr. Tamim Younos,</b> AWRA-NCR Section President, Fellow Member AWRA; Founder & President, Green Water-Infrastructure Academy; Adjunct Professor, CAUSES, University of the District of Columbia	
	• <b>Dwane Jones, PhD,</b> Dean, College of Agriculture, Urban Sustainability & Environmental Sciences (CAUSES), University of the District of Columbia	
	• Norelis Florentino, P.E., MBA, PMP, Symposium Chair & Vice President AWRA-NCR Section, Board Member AWRA, Water Infrastructure Practice Leader and Program Manager, Kleinfelder	
9:15 a.m.	Opening Keynote Ben Grumbles, Executive Director, The Environmental Council of the States (ECOS)	Auditorium
10:00 a.m. – 10:30 a.m.	~~ Break ~~ Please visit posters on display	Auditorium



10:30 a.m. – 11:50 a.m.	Symposium Theme & Invited Panel			
	Federal Funding Access for Emerging Water Resources and Water Infrastructure Challenges			
	Panelists:			
	• Michael Deane, Chief, Clean Water State Revolving Fund, U.S. Environmental Protection Agency (EPA)			
	• Mary Kay Foley, P.E., PMP, Director, Maryland-Delaware-D.C. Water Science Center, U.S. Geological Survey (USGS)			
	Becky Hammer, Senior Attorney & Deputy Director of Federal Water Policy, Natural Resources Defense Council (NRDC)			
	• Dr. Michelle Lorah, Research Hydrologist, Maryland-Delaware-D.C. Water Science Center, U.S. Geological Survey (USGS)			
	Samantha A. Medlock, Assistant Administrator for Resilience Strategy, Federal Emergency Management Agency (FEMA)			
	<b>Moderator:</b> Arash Massoudieh, PhD, Professor and Chair, Civil and Environmental Engineering, The Catholic University of America			
Noon	<ul> <li>Luncheon Keynote Speaker:</li> <li>Charles Fishman, Journalist and Author of "The Big Thirst"</li> <li>Lunch (provided)</li> </ul>	Auditorium		

## **Concurrent Sessions at a Glance**

1:00 p.m. – 1:30 p.m.	Poster Presentations and Awards	Auditorium
1:30 p.m. – 2:50 p.m.	Session 1 (Auditorium): Advances in Water Resources Management	Auditorium
	Moderator: Shane Putnam, PhD, Hydrologist, Dewberry	
	Session 2 (Meeting Room): Climate Change and Impacts	Meeting Room
	Moderator: Laura Chap, Senior Engineer, AtkinsRéalis	
3:00 p.m. – 3:30 p.m.	Coffee Break & Networking	Auditorium



3:30 p.m. – 4:50 p.m.	Session 3 (Auditorium): Advances in Water Quality Management	Auditorium
	Moderator: Keara Moore, Environmental Program Manager,	
	Loudoun County Government	
	Session 4 (Meeting Room): Water System Operations	Meeting Room
	Moderator: David Conrad, Water Resources Policy Advisor, CFM,	
	Association of State Floodplain Managers	
	Session 5 (Meeting Room): Water Workforce Crisis Forum	Meeting Room
	Moderator: David Conrad, Water Resources Policy Advisor, CFM,	
	Association of State Floodplain Managers	

Concurrent Sessions 1:30 p.m. – 2:50 p.m.

Session 1: Advances in Water Resources Management (Auditorium at 1:30 p.m.)	Session 2: Climate Change and Impacts (Meeting Room at 1:30 p.m.)
	(Alecting Room at the plant)
Moderator: Shane Putnam, PhD, Hydrologist, Dewberry	Moderator: Laura Chap, Senior Engineer, AtkinsRéalis
1:30 p.m. – 1:50 p.m.	1:30 p.m. – 1:50 p.m.
Prediction of Catchment-Scale Efficiency of Stormwater	Future Climate-Informed NOAA Precipitation Frequency
Control Measures in an Urban Watershed Using a Process-	Atlas of the United States
Based Modelling Approach	Presenter:
Presenter:	Mark Glaudemans, Chief, Water Resources Services
• Arash Massoudieh, PhD, Professor and Chair, Civil and	Branch, National Weather Service
Environmental Engineering Department, The Catholic	1:50 p.m. – 2:10 p.m.
University of America	Do Weather-Related Trends in Virginia Road Closures
1:50 p.m. – 2:10 p.m.	<b>Correspond to Social Inequities and a Changing Climate?</b>
Interagency Cooperation to Develop the DC Integrated Flood	Presenter:
Model	• P. J. Ruess, PhD, Postdoctoral Research Fellow, Virginia
Presenters:	Climate Center, George Mason University
• Alireza Parhami, PE, Director Digital Transformation, DC	2:10 p.m. – 2:30 p.m.
Water	<b>r</b>



<ul> <li>Lily Cheng, LED, AP, CPHD, Flood Resilience Planner, DC Department of Energy and Environment</li> <li>Christine Estes, PE, PMP, CFM, Vice President, Engineering Department Manager – AECOM</li> <li>2:10 p.m. – 2:30 p.m. Mapping Evapotranspiration and Recharge Flux from</li> <li>Satellite-Based Observations</li> <li>Presenter: <ul> <li>Asif Mahmood, Graduate Student, The George Washington University</li> </ul> </li> <li>2:30 p.m. – 2:50 p.m. Mitigating Capacity Loss due to Sedimentation through Active Reservoir Management</li> <li>Presenters: <ul> <li>Josh Weiss, PhD, Director of Water Resources Innovations, Hazen and Sawyer</li> <li>Phoebe Aron, PhD, Principal Scientist, Hazen and Sawyer</li> <li>Hans Figueroa, PE, BCEE, ENVSP, Pre-Construction Manager, CSA Group</li> </ul> </li> </ul>	<ul> <li>Impact of Different Spatial Scales on Precipitation Trends and Patterns in the US Mid-Atlantic Region</li> <li>Presenters: <ul> <li>Ridwana Binte Sharif, PhD, Graduate Research and Teaching Assistant, Department of Civil, Environmental, and Infrastructure Engineering, George Mason University</li> <li>Viviana Maggioni, PhD, Assistant Professor, Department of Civil, Environmental, and Infrastructure Engineering, George Mason University</li> </ul> </li> <li>2:30 p.m. – 2:50 p.m.</li> <li>Without Water There Is No Agriculture: USDA-NIFA— Working to Solve Agricultural Water Issues Presenter: <ul> <li>James Dobrowolski, PhD, National Program Leader for Water and Natural Resources, United States Department of Agriculture, National Institute of Food and Agriculture (USDA-NIFA)</li> </ul> </li> </ul>
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Break/Poster Awards - 3:00 p.m. - 3:30 p.m.



#### Concurrent Sessions 3:30 p.m. – 4:50 p.m.

Session 3: Advances in Water Quality Management (Auditorium at 3:30 p.m.)Moderator: Keara Moore, Environmental Program Manager, Loudoun County Government3:30 p.m 3:50 p.m. Assessing Water Quality Trends and Impact of Clean River Projects in Restoring DC Water Ways	<ul> <li>4:30 p.m. – 4:50 p.m.</li> <li>Re-Evaluating Toxics Impairments in the District of Columbia</li> <li>Presenters: <ul> <li>Timothy Schmitt, Principal and Senior Environmental Scientist, LimnoTech</li> <li>Jonathan Champion, Associate Director, Water Quality Division, Department of Energy &amp; Environment</li> </ul> </li> </ul>
<ul> <li>Presenters: <ul> <li>Tolessa Deksissa, PhD, Director of Water Resources Research Institute, University of the District of Columbia</li> <li>Maureen Mitchell, Program Manager, Anacostia River Keeper</li> </ul> </li> <li>3:50 p.m. – 4:10 p.m. Comparing Methods for Evaluating Water Quality Indicator Bacteria: Case Study on Municipal Water and Harvested Rainwater. Presenter: <ul> <li>Brienna Anderson-Coughlin, PhD, Postdoctoral Associate, School of Public Health, Maryland Institute for Applied Environmental Health, University of Maryland</li> </ul> </li> <li>4:10 p.m. – 4:30 p.m. Drinking Water Equity Issues in the US using Spatial Analytics Presenter:</li> </ul>	<ul> <li>Session 4: Water System Operations (Meeting Room)</li> <li>Moderator: David Conrad, Water Resources Policy Advisor, CFM, Association of State Floodplain Managers</li> <li>3:30 p.m. – 3:50 p.m.</li> <li>State of the System (SoS): Data-driven Water Operations Optimization <ul> <li>Tamrat Bedane, PE, Manager, Water Operations, DC Water</li> </ul> </li> <li>Session 5: Water Workforce Crisis Forum (Meeting Room)</li> <li>Moderator: David Conrad, Water Resources Policy Advisor, CFM, Association of State Floodplain Managers</li> <li>3:50 p.m. – 4:30 p.m.</li> <li>Solving the Water Workforce Crisis with Returnships and Other Career Re-Entry Programs Presenter:</li> </ul>



• Juneseok Lee PhD, PE, BC.WRE, F.EWRI, Associate	• Cat Shrier, Ph.D., P.G., Founder, WaterCitizen Institute
Professor, Department of Civil and Environmental	• Tami Forman, Founding Executive Director, PathForward
Engineering, Manhattan College, NY	

### **Poster Displays**

#### Auditorium

#### Poster Judges:

- Leila Farhadi, PhD, Associate Professor, The George Washington University
- David Powers, P.E., PH, BC.WRE, CFM,, Water Resources Engineer, CDM Smith
- Siva Selvanathan, PhD, CFM, GISP, Project Engineer, Dewberry

#### A Comprehensive Look at Spatiotemporal Water Quality Variations in the Delaware River

• Gianna Gervino, Megan Heffernan, Sofia Rivera, and Isabel Vasquez, Department of Civil and Environmental Engineering, Manhattan College, Riverdale, NY

#### Adapting Agriculture to Climate Change: Integrated Assessment and Sustainable Strategies in Viticulture

- Janani Kandasamy, Viviana Maggioni, Sid and Reva Dewberry Department of Civil, Environmental, and Infrastructure Engineering, George Mason University, Fairfax, VA
- Christian Massari, Istituto di Ricerca per la Protezione Idro-geologica, Consiglio Nazionale delle Ricerche (CNR), Perugia, Italy
- Paul Houser, Department of Geography and Geoinformation Science, George Mason University, Fairfax, VA

# Advancing the Circular Nexus Solution: Future Technologies and Methods for PFAS Remediation in the Reduce, Reuse, Recycle Framework

• Theressa Mason Ford and Tolessa Deksissa, University of the District of Columbia, Washington, D.C.

#### Augmenting Coastal Water Level Estimation by Merging Nadir-only Satellite Observations into a Storm Surge Model

• Soelem Aafnan Bhuiyan, Graduate Research Assistant, Viviana Maggioni, Associate Professor, and Celso Ferreira, Associate Professor, George Mason University, Fairfax, VA



#### Automated Trash Detection with Computer Vision

- Andrew Heller and Matthew Jacobs, Computer Science Department, The Catholic University of America, Washington, D.C.
- Jessica Beck, Anna Basola, and Jason Davison, Civil and Environmental Engineering Department, The Catholic University of America, Washington, D.C.

#### Drinking and Irrigation Water Quality in Nepal: A Scoping Review

• Alexander Choiniere, Leena Malayil, Suhana Chattopadhyay, and Nedelina Tchangalova, University of Maryland, College Park, MD

## E. coli bacteria Concentrations in District of Columbia Waters: An examination of environmental water quality predictors in 2023

- Claire Barlow, Cher Dallal, and Jaime Trevitt, Department of Epidemiology & Biostatistics, University of Maryland, College Park, MD
- Rachel Elizabeth Rosenberg Goldstein, Maryland Institute for Applied Environmental Health, University of Maryland, College Park, MD
- Maureen Mitchell and Petra Baldwin, Anacostia Riverkeeper, Washington, D.C.

### Identification and Categorization of Microplastics in the Waters of the Anacostia and Potomac Rivers, Washington, DC

- Ava Hanson, Alexis Lashbaugh, Andrew Wilps, and Dejun Chen, Environmental Metrology and Policy Program, Georgetown University, Washington, D.C.
- Jesse Meiller, Earth Commons Institute, Georgetown University, Washington, D.C.

### Indicator Bacteria in PG County Stream Samples

- Riya Raikar, Brienna Anderson-Coughlin, PhD, Nick An, Taeilorae Levell-Young, and Rachel Elizabeth Rosenberg Goldstein, PhD, Water Quality, Outreach, and Wellness (WOW) Lab, Maryland Institute of Applied Environmental Health, University of Maryland School of Public Health, College Park, MD
- Priscila B. R. Alves, PhD and Marccus D. Hendricks, PhD, Stormwater Infrastructure Resilience and Justice (SIRJ) Lab, School of Architecture, Planning, and Preservation, University of Maryland, College Park, MD

## Interdisciplinary Perspectives in Watershed Management and Water Ecosystems

• Bassan Nondohou, University of the District of Columbia, Washington, D.C.



#### Monitoring Trace Metals in DC Water Ways as a Tool for Water Quality Trend Analysis

- Munu Momodu, Tolessa Deksissa, Sania Rose, and Sebhat Tefera, University of the District of Columbia, Washington, D.C.
- Maureen Mitchell, Anacostia River Keeper, Washington, D.C.

#### **Optimal Pump Operations in Building Water Systems**

- Jesus Mendez and Juneseok Lee, Civil and Environmental Engineering, Manhattan College, Riverdale, NY
- Adell Moradi Sabzkouhi, Department of Hydraulic Engineering, Agricultural Sciences and Natural Resources University of Khuzestan, Iran.

#### Social and Environmental Vulnerability to Flooding: Investigating Cross-Scale Hypotheses

- Selena Hinojos and Caitlin Grady, Department of Engineering Management and Systems Engineering, The George Washington University, Washington, D.C.
- Lauren McPhillips, Departments of Civil and Environmental Engineering, Agricultural and Biological Engineering, The Pennsylvania State University, University Park, PA
- Peter Stempel, Department of Landscape Architecture, The Pennsylvania State University, University Park, PA

# Temporal and Spatial Variability of Radon Emissions from Wetland and Upland Ecosystems at the Smithsonian Environmental Research Center

• Glory Ade Iorliam, Dr. Karen Knee (Thesis Advisor), American University Washington, D.C.

## The Impact of Sanitary Sewer Overflows and Basement Backup Events on Bacterial Exposure in Urban Maryland from Summer - Fall 2023

• Kathryn P Dixon, PhD Student, Maryland Institute for Applied Environmental Health, School of Public Health, University of Maryland, College Park, MD

#### Urban Agriculture in Baltimore, Maryland: Documenting Current Irrigation Practices and Rainwater Harvesting

- Julie Yang, Marina Costa, Abriana Segal, Niya Khanjar, Rachel Rosenberg Goldstein, University of Maryland, College Park, MD
- Kelsey Brooks, Marcus Williams, Neith Little, and Andrew Lazur, University of Maryland Extension, College Park, MD

4:50 p.m. – 5:00 p.m. Closing Auditorium	
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## Registration

Please register online by Monday, April 1<sup>st</sup> for the early bird discount. Payment is accepted online by credit card or by cash/ check payment at the event.

Step 1: Go online to the link: <u>https://connect.clickandpledge.com/w/Form/507d316c-a7ab-4e46-9489-4f9c52addc1a</u>.

Step 2: Fill out the registration fee section.

Step 3: Fill out the contact information and payment details sections.

Step 4: Scroll down and click "SUBMIT" to complete the registration and payment.

	Professionals		Students	
<b>Registration Fees</b>	Member or	Non-	Member or	Non-
(includes lunch & coffee breaks)	Presenter/Moderator	Member	Presenter	Member
On-line thru April 1, 2024	\$50	\$75	\$15	\$25
On-site April 12, 2024	\$75	\$100	\$25	\$35

Event Sponsor Fee	
\$100	

# The American Water Resources Association National Capital Region Section Leadership 2023-2024

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Tolessa Deksissa	Vice President/Symposium Committee Chair: Norelis Florentino, P.E., MBA, PMP, Kleinfelder



Norelis Florentino	
Arash Massoudieh	Outreach Chair: David Conrad, CFM, Consultant
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American Water Resources Association National Capital Region Section

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