



2023 National Capital Region Water Resources Symposium
Equitable and Resilient Water Resource Management and Practices

Friday, April 14, 2023
8:30 a.m. – 4:30 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 & 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 theme of the 2023 Water Resources Symposium is Data Science Applications in Equitable and Resilient Water Resource Management, which is a critical and futuristic topic that will be discussed by featured speakers in the plenary session.

Featured Speakers



Keynote Speaker

Jessica Ludy

US Army Corps of Engineers - San Francisco District
Flood Risk, Tribal, & Environmental Justice Program Manager

Jessica Ludy is the Flood Risk, Environmental Justice, and Tribal Partnership Program Manager with the San Francisco District of the US Army Corps of Engineers. In this capacity, Jessica leads the District's work with 'environmental justice' communities and Tribes. She recently led development of the District's Environmental Justice Strategic Plan which includes a framework to holistically integrate environmental justice principles into District operations (and the operations of any organization).

Jessica is currently on Detail with the Office of the Assistant Secretary of the Army for Civil Works to support environmental justice policy in Corps' practice and procedures. Her knowledge of systemic inequity and water draws almost exclusively from the brave work done by scholars, authors, and practitioners of Color, indigenous people, people with disabilities, and individuals with other historically-marginalized identities. In connecting this important legacy to the water management practice, Jessica seeks to amplify and elevate the lived experience of affected communities so that today's water professionals can advance equity for all communities to thrive.

Jessica has 14 years of experience in private and public sectors and received her master's degree in Environmental Planning at UC Berkeley. She completed a Fulbright Fellowship in the Netherlands in 2012, and earned her B.S. in Environmental Science at the University of Vermont in 2003.



Panelists

Maria Honeycutt

Atkins North America

National Director for All-Hazards Resilience

Coastal geologist and resilience policy and practice thought leader, with 24+ years of experience in hazard identification and mapping, hazard mitigation planning and projects, and climate adaptation science and policy.

Samantha Medlock

Select Committee on the Climate Crisis at U.S. House of Representatives (116th & 117th Congresses 2019-2023)

Senior Counsel

Samantha Medlock has more than 20 years of experience in land use and disaster law, and has testified in Congress on flood risk, levee safety, and resilient recovery from disasters and authored amicus briefs on private property rights and the National Flood Insurance Program. 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. In addition to supporting U.S. domestic resilience policy and practice, she has participated in numerous international technical exchanges.

Priscila Alves, PhD, MSc

University of Maryland Stormwater Infrastructure Resilience and Justice Lab (SIRJ)

Manager and Postdoctoral Associate of the SIRJ Lab

Dr. Alves is the Lab Manager and a Post-doctoral Associate of the Stormwater Infrastructure Resilience and Justice (SIRJ) Lab of the University of Maryland (UMD). She holds a PhD in Engineering from the University of Exeter in the United Kingdom, and a MSc in Civil and Environmental Engineering from the Federal University of Campina Grande (UFCG) in Brazil. Dr. Alves is a civil engineer with experience in water resources and environmental engineering. Her professional experience combines the development of city sanitation plans, evaluation of drainage solutions, engineering designs, water resources and geographical information systems modelling, and the development of participatory approaches for engaging with stakeholders. Priscila grew up in Brazil, but also lived in the US and the UK during her professional career. The cultural diversity of these experiences provided her a variety of perspectives of how the disaster risk is rooted in the vulnerabilities and political-institutional conditions of the areas. Her main research interests



are in combining of spatial analysis tools with participatory approaches for disaster risk reduction, especially for the reduction of water-related hazards, such as floods and water shortage.

Anna Mahan

Southeast Rural Community Assistance Project, Inc. (SERCAP, Inc.)
Technical Assistance Provider

Anna Mahan, has recently joined the Southeast Rural Community Assistance Project and she is located in Fredericksburg, VA. She possesses more than 15 years of experience as a facilities/maintenance environmental compliance manager. Prior to joining SERCAP, Inc. she worked for the Boy Scouts of America at Philmont Scout Ranch, in NM. Her past work experience includes conducting various facility inspections and assessments, managing properties compliance with local, state, and federal regulations. Managing environmental compliance reporting and operations for public water systems, fuel distribution and storage facilities, monitoring wells, wastewater systems, surface water intakes and distributions systems in addition to creating and developing operation and maintenance manuals, sampling plans, emergency response plans, and source water protection plans. This work also includes working with agencies regarding erosion control in relation to construction, forest/land development, agricultural use, fire/flood mitigation, GIS collection, and asset management. She coordinates and conducts trainings for specific trade related certifications as well as, host educational trainings for public outreach and engagement.

She is a licensed certified water systems utility operator in the states of New Mexico and Nevada and a licensed certified wastewater utility operator in New Mexico as well.

Luncheon Speaker

Charnelle Hicks

CHPlanning, Ltd and Nspiregreen
President

Ms. Hicks has 30 years of experience in comprehensive and regional planning, economic development, and public outreach. She leads a multidisciplinary urban planning firm where complex planning and infrastructure challenges for clients nation-wide are addressed. She has management consulting experience in business organizational development and frequently shares her professional knowledge on expert conference panels.



**April 14, 2023 NCR Water Symposium Program
UDC Student Center**

8:30 a.m – 9:00 a.m	~ REGISTRATION ~	Ballroom
9:00 a.m. – 9:15 a.m.	<p>Opening & Welcome</p> <ul style="list-style-type: none">• Keara Moore, AWRA-NCR Section President Department of General Services Loudoun County, Virginia• Dwane Jones, Dean, College of Agriculture, Urban Sustainability & Environmental Sciences (CAUSES), University of the District of Columbia• Lorena Kowalewski, AWRA Symposium Chair District of the Columbia Department of Energy and Environment	Ballroom
9:15 a.m. – 10:00 a.m	<p>Keynote</p> <ul style="list-style-type: none">• Jessica Ludy, Flood Risk Management, Equity and Environmental Justice, US Army Corps of Engineers<ul style="list-style-type: none">○ Introduction by Tolessa Deksissa, AWRA-NCR Section Past President	Ballroom
10:00 a.m – 10:30 a.m.	~ Break ~ Please visit posters on display	Ballroom



<p>10:30 a.m. – 11:50 a.m.</p>	<p style="text-align: center;">Symposium Theme & Invited Panel Equitable and Resilient Water Resource Management</p> <p>Moderator:</p> <ul style="list-style-type: none"> • Anna Mahan, Technical Assistance Provider (TAP), Southeast Rural Community Assistance Project, Inc. (SERCAP, Inc.) <p>Panelists:</p> <ul style="list-style-type: none"> • Priscila Alves, Manager and Postdoctoral Associate of the SIRJ Lab, Stormwater Infrastructure Resilience and Justice Lab (SIRJ) • Maria Honeycutt, National Director for All-Hazards Resilience, Atkins North America, invited speaker • Samantha Medlock, Senior Counsel on Select Committee on the Climate Crisis at U.S. House of Representatives (116th & 117th Congresses 2019-2023) 	<p style="text-align: center;">Ballroom</p>
<p style="text-align: center;">Noon</p>	<p style="text-align: center;">Luncheon Speaker</p> <ul style="list-style-type: none"> • Charnelle Hicks, President, CHPlanning, Ltd and Nspiregreen <ul style="list-style-type: none"> ○ Introduction by Keara Moore, AWRA-NCR Section President • Provided Lunch 	<p style="text-align: center;">Ballroom</p>

Concurrent Sessions

<p>1:00 p.m. – 2:00 p.m.</p>	<p>Session 1: Community-Driven Water Resource Projects</p> <ul style="list-style-type: none"> • Community-Driven Research On Sanitary Sewer Overflows And Basement Backups 	<p style="text-align: center;">Ballroom</p>
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	<ul style="list-style-type: none">○ Dr. Rachel Rosenberg Goldstein, University of Maryland Water Quality, Outreach, and Wellness Lab○ Dr. Priscila B. R. Alves, University of Maryland Stormwater Infrastructure Resilience and Justice Lab● Equity Guide For Green Stormwater Infrastructure Practitioners<ul style="list-style-type: none">○ Beatrice Ohene-Okae, DC Department of Energy and Environment● Installing Residential BMPs in Underserved Communities in Prince George's County, MD<ul style="list-style-type: none">○ Michelle Kokolis, University of Maryland Environmental Finance Center <p>Session 2: Water Quality Monitoring And Restoration</p> <ul style="list-style-type: none">● Assessing The Efficacy Of Bioretention Cell In Treating Stormwater Quality<ul style="list-style-type: none">○ Tolessa Deksissa, Sania Rose, Thomas Beights, and Sebat Tefera, Water Resources Research Institute, College of Agriculture, Urban Sustainability, and Environmental Sciences, University of the District of Columbia● A Watershed Approach To Restoration And Ecological Uplift In The Long Branch Central Watershed<ul style="list-style-type: none">○ Gregory Zuknick, Biohabitats, Inc.● DOEE Stream Condition Index<ul style="list-style-type: none">○ Alicia Ritzenthaler, DC Department of Energy and Environment● Mapping Diffuse Recharge Flux Using Reduced-Adjoint Variational Data Assimilation Method By Assimilating SMAP Soil Moisture Observations<ul style="list-style-type: none">○ Parisa Heidary, George Washington University	<p style="text-align: center;">Tower Room</p>
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2:00 – 3:00 p.m	Poster Presentations Interactive Session	Ballroom
3:00 p.m. – 4:00 p.m.	Local Implementation of Equitable and Resilient Water Resource Management Panel <ul style="list-style-type: none">• Jeanne Braha, Rock Creek Conservancy• Frank Dawson, Montgomery County Water Quality Division• Lily Cheng, DC Department of Energy and Environment	Ballroom
4:00 p.m.- 4:30 p.m.	Poster Award Presentations Closing and Networking	Ballroom

Poster Displays

Ballroom

Determining Risk Exposure To Methicillin-Resistant Staphylococcus Aureus In Paint Branch Tributary

Jack Keane¹, Emily Healey¹, Andrew Kim¹, Deepak Menon¹, Qianyao Si², Priscila B. R. Alves², Marccus Hendricks², Rachel Goldstein¹

1.University of Maryland College Park, School of Public Health, Maryland Institute for Applied Environmental Health;
2.Stormwater Infrastructure Resilience and Justice (SIRJ) Lab, School of Architecture, Planning & Preservation University of Maryland, College Park

Rainwater Harvesting Webinars To Increase Knowledge

Taeilorae Levell-Young¹, Kelsey Brooks^{2,3}, Marcus Williams², Andy Lazur², Rachel E. Rosenberg Goldstein¹

1.Maryland Institute for Applied Environmental Health, School of Public Health, University of Maryland, College Park;
2.University of Maryland Extension; 3.National Wildlife Federation

Determining The Impact Of Well Maintenance, Condition, Type, And Location Factors On E. Coli And Total Coliforms In Maryland Farm Private Drinking Water Wells

Cameron Smith¹, Andrew Lazur², Alan Leslie², Benjamin Beale², Kelly Nichols², Shannon Dill², Sarah Hirsh², Jeff Semler², Andrew Kness², Emily Healey¹, Jack Keane¹, Raul Cruz-Cano³, Rachel Goldstein¹

1.University of Maryland College Park, School of Public Health, Maryland Institute of Applied Environmental Health; 2.University of Maryland Extension; 3.Indiana University School of Public Health

Predicting Urban Heat Islands In Washington, DC From Biophysical Parameters Derived From Landsat Images Using Gene-Expression Programming

Neha Ramanna, George Washington University Undergraduate; Parisa Heidary, George Washington University Ph.D Candidate; Dr. Leila Farhadi, George Washington University Professor

An Assessment Of Urban Agriculture Practices For Mitigating Climate Change

CHRISTOPHER EDOZIE IWERIEBOR, Graduate Student, PSM Urban Agriculture, University of the District of Columbia.

Impact Of Anacostia Water Exposure On Adult Zebrafish Behavior

Sonora Robles, Madeline Caballero, Victoria Connaughton, Ph.D., American University

A Direct Insertion Data Assimilation of Sea Surface Height in a Storm Surge Model

Soelem Aafnan Bhuiyan¹, Viviana Maggioni¹, Celso Ferreira¹, Azbina Rahman^{1,2}

1. Department of Civil, Environmental & Infrastructure Engineering, George Mason University; 2. Department of Environmental Science & Technology, University of Maryland

Testing for E.coli and Heavy Metals in Harvested Rainwater from Urban Farms and Gardens in Baltimore City, MD

Esha Saxena, Undergraduate Student; Emily M. Healey, PhD student; Cameron Smith, Taecilora Young, Emily Speierman, M.S. Candidate; Ibiyinka M. Amokeodo; Jack Keane, Jenna Kraemer, and Mya Smith, Undergraduate Students; University of Maryland, School of Public Health, Maryland Institute for Applied Environmental Health; Marcus Williams, Andy Lazur and Kelsey Brooke, University of Maryland Extension; Rachel Rosenberg Goldstein, Assistant Professor

Flood Risk Management Analysis to Predict Flooded Areas in Washington, D.C. using VH Bands Derived from Sentinel Images

Maura Kane-Seitz, George Washington University Undergraduate; Parisa Heidary, George Washington University Ph.D Candidate; Dr. Leila Farhadi, George Washington University Professor

Basement Backups and Bacteria: Evaluating the Risk of Residential Exposure to Antibiotic-Resistant Bacteria from Sanitary Sewer Overflows and Basement Backups

Emily M. Healey¹, Dr. Priscila B. R. Alves², Dr. Marccus D. Hendricks³, Dr. Rachel Rosenberg Goldstein⁴,

1. PhD Student, Maryland Institute for Applied Environmental Health, School of Public Health, University of Maryland, College Park; 2. Postdoctoral Research Associate, School of Architecture, Planning & Preservation, University of Maryland, College Park; 3. Associate Professor, School of Architecture, Planning & Preservation, University of Maryland, College Park; 4. Assistant Professor, Maryland Institute for Applied Environmental Health, School of Public Health, University of Maryland, College Park

Optimal Pump Operations in Water Distribution Systems

James McCoy and Juneseok Lee Ph.D, P.E, D.WRE, Civil and Environmental Engineering, Manhattan College

Socially Vulnerable People and Pipelines: A Geospatial Exploration of the Equitable Distribution of Grey and Green Stormwater Infrastructure in Washington D.C.

Minkyu Park¹, Rachel Marie Whiteheart², Priscila Barros Ramalho Alves³, Marccus D. Hendricks⁴

1. PhD Candidate, Urban and Regional Planning and Design, Stormwater Infrastructure Resilience and Justice (SIRJ) Lab School of Architecture, Planning and Preservation, University of Maryland, College Park; 2. Master of Community Planning Student School

of Architecture, Planning and Preservation Stormwater Infrastructure Resilience and Justice (SIRJ) Lab University of Maryland, College Park; 3. Postdoctoral Researcher Associate, Stormwater Infrastructure Resilience and Justice (SIRJ) Lab School of Architecture, Planning and Preservation, University of Maryland, College Park; 4. Associate Professor of Urban Studies & Planning Stormwater Infrastructure Resilience and Justice (SIRJ) Lab, School of Architecture, Planning and Preservation, University of Maryland, College Park

Spatial Approaches To Refining Urban Catchment Delineation That Integrate Stormwater Network Infrastructure

Qianyao Si¹, Higor Costa de Brito², Priscila B Ramalho Alves³, Marccus Hendricks⁴, Mitchell A Pavao-Zuckerman⁵

1. PhD student, Department of Environmental Science and Technology, University of Maryland, College Park; 2. PhD student, Center of Technology and Natural Resources, Federal University of Campina Grande, Brazil; 3. Postdoctoral Researcher Associate, Stormwater Infrastructure Resilience and Justice (SIRJ) Lab, School of Architecture, Planning and Preservation, University of Maryland, College Park; 4. Associate Professor of Urban Studies & Planning, Stormwater Infrastructure Resilience and Justice (SIRJ) Lab, School of Architecture, Planning and Preservation, University of Maryland, College Park; 5. Associate Professor of Department of Environmental Science and Technology, University of Maryland, College Park

Carbon Neutral Field Work To Quantify And Model Microplastics In Sligo Creek

Grace Pooley Deans, PhD candidate; Dr. Jason H Davison, Assistant Professor; Catholic University of America, Department of Civil and Environmental Engineering

Water Demand Forecasting Using Various Machine Learning Techniques

Matthew Bafundo and Juneseok Lee Ph.D, P.E, D.WRE, Civil and Environmental Engineering, Manhattan College, Riverdale, NY

Drinking Water Equity Issues In The US Using Spatial Analytics

Sakira Del Rosario and Juneseok Lee Ph.D, P.E, D.WRE, Civil and Environmental Engineering, Manhattan College, Riverdale, NY

Enhanced Water Resources Management Through Bio-intensive Urban Agroecology

Rose Kaythe, Michael Whyte, Mchezaji Axum, Dr. Lavell Merrit, Dr. Tolessa Deksissa, University of the District of Columbia

Assessing IACUC Protocol for a Small-scale Aquaponic System

David Lowe, Rose Keythe, Ariel Verbrugge, Michael Whyte, Dr. Tolessa Deksissa, University of the District of Columbia



Registration

Please register online by Monday, April 5 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: <https://connect.clickandpledge.com/w/Form/d89a84e4-a60d-4d6c-9ddc-515785adf000>

Step 2: Fill out the registration fee section

Step 3: Fill out the contact information section

Step 4: Scroll down and click “SUBMIT” to complete the registration and payment

Registration Fees (includes lunch & coffee breaks)	Professionals		Students	
	Non-Member	<u>Member</u> or Presenter/Moderator	Non-Member	<u>Member</u> or Presenter
Online until April 5, 2023	\$75	\$50	\$25	\$15
On-site April 14, 2023	\$100			



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2022-2023

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