



**2015 National Capital Region Water Resources Symposium:  
Urban Water Management and Resilience in Uncertain Times**

**Friday, April 10, 2015  
8:00 a.m. – 5:00 p.m.**

**University of the District of Columbia (UDC)  
David A. Clarke School of Law  
4340 Connecticut Ave., NW, Washington DC**

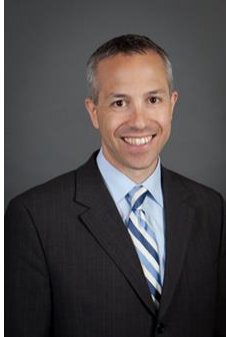
**Directions:** The UDC Law School is two blocks north of the Van Ness-UDC Metro station (Red Line). When you exit the escalator, turn left and along Connecticut Ave (the escalator will point you in the right direction). Follow signs to the 5th floor. **Campus Map:** [http://www.udc.edu/about\\_udc/campus\\_map](http://www.udc.edu/about_udc/campus_map) (Building #52)

## **Introduction**

The National Capital Region (NCR), encompassing the District of Columbia, and parts of Maryland, Virginia and West Virginia, has unique and challenging opportunities for sustainable management of water resources and water infrastructures. 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

This one-day symposium at the University of the District of Columbia will bring together experts from governmental agencies, academia, the private sector, and non-profits to discuss challenges and opportunities for sustainable management of water resources and infrastructure in the 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.

## Featured Speakers



**Daniel Zarrilli**



**Vicki Arroyo**



**Mary M. Cheh**



**Carolyn Kousky**



**Roland C. Steiner**

**Daniel Zarrilli** Daniel Zarrilli was appointed in March 2014 by Mayor Bill de Blasio as the Director of the Office of Recovery and Resiliency for the City of New York, leading the implementation of A Stronger, More Resilient New York, the City's comprehensive climate resiliency program to strengthen coastal protections, upgrade buildings, improve infrastructure, and make neighborhoods safer and more vibrant. Daniel was appointed in 2014 to a 3-year term on FEMA's National Advisory Council and is serving on the Resiliency Technical Advisory Panel for the State of Louisiana's 2017 Coastal Master Plan update. From February 2014 until December 2014, he also served as the Acting Director of the NYC Mayor's Office of Long-Term Planning and Sustainability. Prior to this, he was named the City's first Director of Resiliency in June 2013 after serving on the Mayor's Special Initiative for Rebuilding and Resiliency, leading the City's post-Sandy efforts to develop a comprehensive coastal protection plan for the five boroughs. In a previous role, he was the Senior Vice President for Asset Management at the New York City Economic Development Corporation (NYCEDC). Prior to joining NYCEDC, Daniel spent five years with Bechtel Infrastructure Corporation. He is a Professional Engineer in the State of NY and holds an MS in Civil and Environmental Engineering from MIT and a BS in Civil Engineering from Lehigh University. He resides in Staten Island with his wife and two children.

**Vicki Arroyo** is Executive Director of the Georgetown Climate Center where she oversees work on climate change mitigation and adaptation. She directs Georgetown's Environmental Law Program and serves as Assistant Dean for Centers and Institutes and as Professor from Practice at Georgetown Law. Ms. Arroyo previously served as Vice President for Policy Analysis and General Counsel of the Pew Center on Global Climate Change where she directed policy analysis, science, adaptation, economics, and U.S. policy programs. She has worked at all levels of government and in the private sector and holds degrees in science (Emory), policy (Harvard), and law (Georgetown).



**Mary M. Cheh** has served on the Council of the District of Columbia since 2007 and is currently the Chair of the Committee on Transportation & the Environment. A tenured constitutional law and criminal procedure professor at the George Washington University Law School, Ms. Cheh has championed legislation to protect the environment, improve the health of District residents, and has fought for good government. In the last seven years as councilmember, Ms. Cheh has introduced over 400 separate bills and led five major Council investigations. Ms. Cheh is a Phi Beta Kappa graduate of Douglass College, and received her law degrees from Rutgers and Harvard universities.

**Carolyn Kousky** is a fellow at Resources for the Future. She has published numerous articles, reports, and book chapters on the economics and policy of natural disasters and disaster insurance markets. She is the recipient of the 2013 Tartufari International Prize from the Accademia Nazionale dei Lincei. Dr. Kousky is a member of the National Research Council Committee on Analysis of Costs and Benefits of Reforms to the National Flood Insurance Program and the Adaptation and Hazards Indicators Technical Team for the US Global Change Research Program. She has a BS in Earth Systems from Stanford University and a PhD in Public Policy from Harvard University.

**Roland C. Steiner** is a water and wastewater consultant focusing on asset management. Previously, he served as Manager for Regional Water and Wastewater matters for the Washington Suburban Sanitary Commission, responsible for budgeting of capital programs at neighboring utilities which provide services to WSSC. He also had been Associate Director for Water Resources at the Interstate Commission on the Potomac River Basin where he was responsible for directing coordinated drought supply management of river and reservoir resources for the Washington, DC region. Dr. Steiner served on advisory and project committees of the National Academy of Sciences, American Water Works Association, and the U.S. Geological Survey. He has a B.Sc. and M.Sc. in Civil Engineering (University of Pennsylvania), and (Stanford) respectively, and a Ph.D. in Environmental Engineering (Johns Hopkins). He is a Professional Engineer in the State of Maryland.



## Program

8:00 a.m.	<b>~~ REGISTRATION ~~</b>	<b>Fifth Floor Lobby</b>
8:45 a.m.	<b>Opening &amp; Welcome</b> <ul style="list-style-type: none"><li>• <b>Thomas Johnson</b>, U.S. EPA, AWRA-NCR Section President</li><li>• <b>Tolessa Deksissa</b>, Director, Water Resources Research Institute &amp; Professional Science Master's Water Resource Management Program, University of the District of Columbia</li><li>• <b>Sabine O'Hara</b>, Dean, College of Agriculture, Urban Sustainability &amp; Environmental Sciences, University of the District of Columbia</li><li>• <b>Tamim Younos</b>, The Cabell Brand Center for Global Poverty and Resource Sustainability Studies Symposium Chair &amp; Vice President AWRA-NCR Section, Fellow Member AWRA Introduction to the Symposium Theme</li></ul>	<b>Room 518</b>
9:15 a.m.	<b>Keynote</b> <b>Daniel Zarrilli</b> , Director of the Mayor's Office of Recovery and Resiliency for the City of New York Introduction by <b>Cherie Schultz</b> , Interstate Commission on the Potomac River Basin, AWRA-NCR President Elect	<b>Room 516</b>
10:00 a.m.	<b>~~ Break ~~</b> <b>Please visit the posters on display in the break area</b>	<b>Fifth Floor Lobby</b>



10:30 a.m.	<b>Invited Panel: Urban Water Management and Resilience in Uncertain Times</b> <b>Moderator:</b> Roland C. Steiner, Consultant <b>Panelists:</b> <b>Carolyn Kousky</b> , Resources For the Future <b>Vicki Arroyo</b> , The Georgetown Climate Center <b>Mary M. Cheh</b> , Council Member, District of Columbia	<b>Room 518</b>
11:50 a.m.	<b>Lunch (provided) &amp; Networking</b>	<b>Room 214</b>

1:00 p.m. – 2:45 p.m. <b>CONCURRENT SESSIONS A, B</b>	
<b>A. CLIMATE CHANGE: ASSESSMENT AND ADAPTATION</b> <b>Room 505</b> <b>Moderator:</b> Jason Giovannettone, HydroMetriks	<b>B. WATER QUALITY MANAGEMENT</b> <b>Room 506</b> <b>Moderator:</b> Mathini Sreetharan, Dewberry



**Statistical Downscaling of Precipitation in the Occoquan Watershed Using Different Climate Models**

Mehdy A. Barandouzi, Doctoral Student, Glenn E. Moglen, Professor, Adil N. Godrej, Research Associate Professor, Occoquan Laboratory, Virginia Tech, Manassas, VA.

**Climate Change Assessment in the Chesapeake Bay Watershed**

Hyunwoo Kang, Graduate Student; Choung Hyun Seong, Postdoctoral Associate; and Venkataramana Sridhar, Assistant Professor, Virginia Tech.

**Design Storm and Climate Change Analysis in Northern Virginia**

Prasanth Valayamkunnath, Graduate Student, Mirza Billah, Postdoctoral Associate; and Venkataramana Sridhar, Assistant Professor, Dept. Biological Systems Eng. Virginia Tech.

**Barriers and Opportunities for Local-level Action on Climate Change and Stormwater Management**

Britta Bierwagen\*, Senior Scientist, Office of Research and Development, EPA; Susan Julius, Senior Climate Change Specialist, Office of Research and Development, EPA; Susan Asam, Principal, ICF International; Dana Spindler, Senior Associate, ICF International.

**The Use of Robust Decision Making to Address Climate Change Uncertainties in Water Quality Management**

Susan Julius, Senior Climate Change Specialist, Office of Research and Development, EPA; Tom Johnson, Senior Scientist, Office of Research and Development, EPA; Jordan Fischbach, Policy Researcher, RAND Corporation, Robert Lempert, Director, Frederick S. Pardee Center for Longer Range Global Policy and the Future Human Condition, RAND Corporation.

**Storm Responses of Culturable and Molecular Fecal Indicators in an Urban Stream**

Brian Badgley, Assistant. Prof. Dept. Crop & Soil Environ. Science ; Hehuan Liao, Doctoral Student, Leigh-Anne Krometis, Assistant Prof. W. Cully Hession, Prof. Romnia Benitez, Erin Schaberg, Emily von Wagoner, Undergraduate Students Dept. Biological Syst. Eng. Richard Sawyer, Undergraduate Student, Dept. Crop & Soil Environ. Science, Virginia Tech.

**Microbial Source Tracking in the Greater Washington D.C. Region**

Charles Hagedorn, Prof. Dept. of Crop and Soil Environ. Sciences, Virginia Tech; Michael Powell, Senior Scientist, EA Engineering, Science, and Technology; Martin Chandler, Principal Environmental Engineer, Washington Suburban Sanitary Commission; and Annie Hassall-Lawrence, Dept. Crop and Soil Environ., Virginia Tech.

**Innovative Removal of Agricultural Related Water Pollutants in the Chesapeake Bay Watershed**

William E. Roper, Kelly P. Rock, and Howard E. Sorber III, Micronic Technologies Corporation, Wise, VA

**Uncertainty Analysis of Activated Sludge Model Parameters: A Case Study at the Blue Plains Wastewater Treatment Plant, Washington, D.C.,**

Jamal Alikhani, Dept. Civil Eng., The Catholic University of America; Ahmed Al Omari, Sudhir Murthy, DC Water and Sewer Authority; Imre Takacs, Dynamita, France; and Arash Massoudieh, Dept. Civil Eng. The Catholic University of America.

**Aquaponic System as a Sustainable Water and Food Management Strategy**

Yacov Assa, Laboratory Technician, William Hare, Associate Dean for the Land Grant Programs, CAUSES, and Tolessa Deksissa, Director, Water Resource Research Institute, University of the District of Columbia.



2:45 p.m.	<b>~~ Break ~~</b> <b>Please visit the posters on display in the break area</b>		<b>Fifth Floor Lobby</b>
<b>3:00 p.m. – 4:45 p.m. CONCURRENT SESSIONS C, D</b>			
<b>C. URBAN INFRASTRUCTURE: RESILIENCE Room 505</b>		<b>D. URBAN HYDROLOGY AND WATER MANAGEMENT IN COASTAL ENVIRONMENTS Room 506</b>	
<b>Moderator:</b> Celso Ferreira, Department of Civil, Infrastructure and Environmental Engineering, George Mason University		<b>Moderator:</b> Sandra Pavlovic, NOAA National Weather Service, Office of Hydrologic Development	
<p><b>Resilient Infrastructure – Preparing for our Future</b>          Joe Manous, Manager, International Activities, Institute for Water Resources, USACE</p> <p><b>Resilience Decision Support Tools</b>          Mathew Mampara, PE, CFM, Senior Associate, Dewberry,          Fairfax, Virginia</p> <p><b>Climate Ready Water Utilities: Helping the Water Sector Prepare for and Adapt to Climate Change</b>          Curt Baranowski and Steve Fries, US EPA, CSC</p> <p><b>A Programmatic Analysis of Leak Detection at Water Systems</b>          Erin Ress, Intern and Alan Roberson, Director of Federal Relations, American Water Works Association, Washington, D.C.</p>		<p><b>Effects of Urbanization on Shallow Hydrogeologic Systems: Specific Examples from Washington, D.C. and Austin, Texas</b>          John M. Sharp, Jr., Professor, Department of Geological Sciences, The University of Texas, Austin, Texas.</p> <p><b>Integrating Rivers Discharge into Coastal Flooding Modeling Along Baltimore Harbor</b>          Juan Luis Garzon Hervas, Graduate Student, Seth Lawler, Graduate Student, Jana Haddad, Graduate Student, Mithun Deb, Graduate Student, Celso Ferreira, Assistant Professor, Department of Civil, Infrastructure and Environmental Engineering, George Mason University.</p> <p><b>Assessment of Coastal Vulnerability to Storm Surge Hazards in the Bay of Bengal Region: A Case Study for Bangladesh</b>          Mithun Deb, Graduate Student and Celso Ferreira, Assistant Professor, Department of Civil, Infrastructure and Environmental Engineering, George Mason University.</p>	



<p><b>To Green or Not to Green: Modeling Incentive-Based Programs for Green Infrastructure Investment on Private Properties</b> Seth Brown, PE, Stormwater Program and Policy Director, Water Environment Federation; Pradeep Behera, Professor and Chairman, Department of Civil Engineering, University of the District of Columbia; Celso Ferreira, Assistant Professor, Department of Civil, Environmental and Infrastructure Engineering, George Mason University; and Mark Houck, Professor, Department of Civil, Environmental and Infrastructure Engineering, George Mason University.</p>	<p><b>A Geospatial Framework for Characterizing the Interaction of Wetlands, Storm Surge Flooding, and Critical Infrastructure in the Chesapeake Bay</b> Jana Haddad, Graduate Student and Celso Ferreira, Assistant Professor, Department of Civil, Infrastructure and Environmental Engineering, George Mason University.</p> <p><b>Water Quality Classification of Potomac River Using Principal Component Analysis Method</b> Tilaye Alemayehu, Graduate Student, Nian Zhang, Assistant Professor and Pradeep Behera, Professor, University of the District of Columbia.</p>
4:45 p.m.	<b>ADJOURN</b>

**Poster Presentations**

8:30 a.m. – 3:30 p.m.  
Fifth Floor Lobby

<p><b>Using Global Climate Indices to Forecast Global Hurricane Activity and Rainfall/Drought in Latin America</b> Jason Giovannetone, HydroMetriks</p> <p><b>Development of a Storm Event Analysis Software Tool for Water Resources Engineering</b> Bharath Kumar Reddy Arikatla, and Geetanjali Suribhatla, Computer Science Major, Pradeep K. Behera, Professor, and Dong H. Jeong, Assistant Professor, University of the District of Columbia, Washington, D.C.</p> <p><b>Advanced Removal of Nitrates and Nitrites from Contaminated Delaware Well Water</b> William E. Roper, Kelly P. Rock, and Howard E. Sorber III, Micronic Technologies Corporation, Wise, VA.</p>
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<p><b>Analysis of Trace Metal Contamination and Nutrient Loading in Urban Gardens</b>          Siaka Nuah, Harold Yapuwa, Rahil Fofana1 and Ulrich Bazemo, Graduate Assistants and Tolessa Deksissa          Director, Professional Science Master’s in Water Resources Management, College of Agriculture, Urban Sustainability and Environmental Sciences, University of the District of Columbia</p> <p><b>Chlordane in Anacostia Fish</b>          Harriette Phelps; University of the District of Columbia, DC and Onyinye Okidoh, Eleanor Roosevelt High School, MD</p>		
5:00 p.m.	<p><b>Optional Post- Symposium TOUR: UDC Campus Green Infrastructure</b>          Led by <b>Dr. Tolessa Deksissa</b>, Director, DC Water Resources Research Institute &amp; Professional Science Master’s Water Resource Management Program</p>	Meet in 1st floor lobby

### Registration

All attendees, including presenters, are expected to register. Please register online by Monday, April 6 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://co.clickandpledge.com/sp/d1/default.aspx?wid=58557>
- 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

	Professionals		Students	
	Member or Presenter	Non-Member	Member or Presenter	Non-Member
<b>Registration Fees</b> (includes lunch & coffee breaks)				
On-line thru April 6	\$35	\$50	\$15	\$25
On-site April 10	\$50	\$75	\$25	\$35



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2014-2015

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