



The National Capital Region Water Resources Symposium: Water Resources and Water Infrastructure: Emerging Problems and Solutions

Friday, April 4, 2014
8:00 a.m. – 4:30 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 (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 is the gateway to the Chesapeake Bay, the largest estuary in the U.S; provides water for six million people; but also hosts many agencies which consider water resources at a national or international scale.

This one-day symposium at the University of the District of Columbia brings 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.



Program

8:00 a.m.	~~ REGISTRATION ~~	Fifth Floor Lobby
8:45 a.m.	Opening & Welcome <ul style="list-style-type: none">• Stacy M. Langsdale, AWRA-NCR Section President• Tolessa Deksissa, Symposium Co-Chair, Director, DC Water Resources Research Institute & Professional Science Master's Water Resource Management Program• Sabine O'Hara, Dean, College of Agriculture, Urban Sustainability & Environmental Sciences, UDC• Rachel Petty, Interim Provost, University of the District of Columbia• Tamim Younos, Symposium Chair & Vice President AWRA-NCR Section, AWRA Fellow Member: Introduction to the Symposium Theme	Room 516
9:15 a.m.	Keynote: George Hawkins , General Manager, District of Columbia Water and Sewer Authority (DC Water) <i>Introduction by Erica Brown – Association of Metropolitan Water Agencies, AWRA-NCR Secretary</i>	Room 516
10:00 a.m.	~~ Break ~~ Please visit the posters on display in the break area	Fifth Floor Lobby



10:30 a.m.	<p>Panel: Water Infrastructure – Emerging Problems and Solutions Moderator: Noel Gollehon, USDA Panelists: Claudia Copeland, Resources and Environmental Policy Specialist, Congressional Research Service Emily Fishkin, Director, Infrastructure Initiatives, ASCE Benjamin Grumbles, President, U.S. Water Alliance Jerry Johnson, General Manager, Washington Suburban Sanitary Commission</p>	Room 516
11:50 a.m.	<p>Lunch provided</p> <p>Information Session: AWRA Annual Conference to be held in Tysons Corner, VA, Nov 3-6, 2014 Thomas Johnson, AWRA-NCR Section, President-Elect Mark Dunning, AWRA President Lisa Engelman, AWRA 2014 Conference Chair</p>	Room 214

1:00 p.m. – 2:30 p.m. CONCURRENT SESSIONS 1	
<p style="text-align: center;">1A: WATER RESOURCES USE AND SUPPLIES Room 506</p> <p style="text-align: center;"><i>Moderator: Cherie Schultz, Interstate Commission on the Potomac River Basin</i></p>	<p style="text-align: center;">1B: URBANIZATION IMPACTS & FLOOD ANALYSIS Room 516</p> <p style="text-align: center;"><i>Moderator: Jason Giovannettone, HydroMet</i></p>



Solving Groundwater Flow Equations Using Gradually Varied Functions

Li Chen, Assoc. Prof, Dept of Computer Science and Information Technology, UDC; *Xun-Hong Chen*, School of Natural Resources, Univ. Nebraska-Lincoln.

Solar-Powered Membrane System for Emergency Drinking Water Supply

Catherine Birney, Undergraduate Researcher and *Baoxia Mi*, Faculty Advisor, Civil and Environmental Engineering Department, UMCP

Solar Energy Accessed Groundwater for Urban Food Production

William W. Hare, Assoc. Dean/Director, Land-grant Programs; *Mchezaji Axum*, Director, Ctr for Urban Agriculture and Gardening Education; *Tolessa Deksissa*, Director, Water Resources Research Institute; *Kobina, Atobrah*, Research Associate, WRRRI; *Samuel Lakeou*, Assistant Dean, School of Engrg and Applied Science and Chair, Dept of Electrical and Computer Engrg; *Siaka Nuah*, Graduate Asst, Water Resources Management; *Missi Sogbohossou*, *Brice Koukoua*, and *Raju Shrestha*, Undergraduate Students, Dept of Electrical and Computer Engrg, UDC

The Healthy Harbor Initiative of Baltimore: Practical private sector solutions for a swimmable and fishable Baltimore Harbor

Adam Lindquist, Healthy Harbor Manager, Waterfront Partnership of Baltimore

Effect of Urbanization on the Hydrologic Performance

Sergio De Hoyos, Doctoral Student and *Celso Ferreira*, Asst Prof, Civil, Environmental, and Infrastructure Engineering, GMU

Climatic and Geomorphic Influences on Spatial Scaling of Floods

Carolyn Plank; and *Karen Prestegaard*, Assoc.Prof., Geology Department, UMCP

Affordable Flood Forecasting Using FEMA Models

Mathini Sreetharan PhD, PE, CFM 1, Dewberry, Fairfax, VA

MJO Impacts South America Rainfall and Atlantic Hurricanes: A Study using Frequency Analysis & Regression

Jason Giovannettone PhD, Director, HydroMet, LLC, Alexandria, VA



2:30 p.m.	<p>~~ Break ~~</p> <p>Please visit the posters on display in the break area</p>		<p>Fifth Floor Lobby</p>
<p>3:00 p.m. – 4:30 p.m. CONCURRENT SESSIONS 2</p>			
<p>2C: WATER TREATMENT AND CONTAMINANT DETECTION</p> <p>Room 506</p> <p><i>Moderator: Celso Ferreira, Civil, Environmental, and Infrastructure Engineering, George Mason University</i></p>		<p>2D: WETLANDS AND ECOSYSTEMS</p> <p>Room 516</p> <p><i>Moderator: Sridhar Venkataramana, Biological Systems Engineering, Virginia Tech</i></p>	
<p>Contaminant Removal From Water With A Single Pass Advanced Treatment System <i>William Roper PhD, P.E., Director of Research, Micronic Technologies; Kelly P. Rock, Inventor, CTO, Micronic Technologies</i></p> <p>Methylotrophs Process Parameter Estimation of Nitrification- Denitrification Processes of Blue Plains Wastewater Treatment Plant in Washington, DC. <i>Jamal Alikhani, Dept of Civil Engineering, The Catholic University of America; Sudhir Murthy, DC Water and Sewer Authority; Imre Takacs, Dynamita, Nyons, France; Ahmed Al Omari, DC Water and Sewer Authority; Yalda Mokhayeri, AECOM, Washington, DC, Arash Massoudieh, Dept of Civil Engineering, CUA.</i></p> <p>Speciation of Arsenic and Chromium by HPLC/ICP-MS in Water <i>Tolessa Deksissa, Director, WRRI, and Sebhat Tefera, Laboratory Technician, UDC</i></p>		<p>Storm Surge Attenuation In Chesapeake Bay Wetlands: Analysis And Modeling <i>Seth Lawler, Graduate Student; Mithun Deb, Graduate Student; Celso Ferreira, Asst Prof, Civil, Environmental, and Infrastructure Engineering, GMU</i></p> <p>Application of Unstructured mesh, SWAN+ADCIRC model to evaluate the role of wetlands in attenuating storm surges, Chesapeake Bay region <i>Mithun Deb, Graduate Student; Celso Ferreira, Asst Prof, Civil Environmental and Infrastructure Engineering, GMU</i></p> <p>Increases In The Supply Of Coarse Sand Changes Sediment Transport Mechanics , Leading To Rapid Geomorphic Channel Changes In The Anacostia River <i>Karen L. Prestegaard, Assoc Prof; Zack Blanchet and John Kemper, Dept of Geology, UMCP</i></p>	



<p>Rapid Screening and Quantitation of a Pesticides and Pharmaceuticals in Water and Food Products Using AxION DSA/TOF and Flexar SQ MS <i>Sebhat Tefera, Laboratory Technician and Tolessa Deksissa Director, WRRI, UDC</i></p>	<p>Vegetation-Hydrodynamic Interactions and the Stability of Channel Inlets in Tidal Freshwater Wetlands, Chesapeake Bay System <i>Anna Statkiewicz, Graduate Student; Karen Prestegaard, Assoc Prof, Dept of Geology, UMCP</i></p>	
4:30 p.m.	ADJOURN	
4:30 p.m.	<p>Optional Post- Symposium TOUR: UDC Campus Green Infrastructure Led by Dr. Tolessa Deksissa, Director, DC Water Resources Research Institute & Professional Science Master's Water Resource Management Program</p>	Meet in 1st floor lobby



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

Simultaneous Analysis of Total Organic Carbon and Nitrogen in Water Samples Using TOC-Vch and TNM-L Detectors

Harold Yapuwa, Graduate Student; *Sebhat Tefera*, Laboratory Technician; and *Tolessa Deksissa*, Director, WRRI, UDC

Activated Sludge Parameter Estimation using Inverse Modeling

Heather Stewart, Research Asst; *Arash Massoudieh*, Asst Prof, Civil & Environmental Engineering, The Catholic University of America

Applications of Social Vulnerability Analysis to Water Resources Hazards

Mark Dunning, CDM-Smith; *Susan Durden*, USACE Institute for Water Resources; and *Dave Lanter*, CDM-Smith

The Development And Use Of A Spatio-Temporal Model To Evaluate And Optimize Constructed Wetland Design

Jennifer M. Olszewski, Ben Dyer Research Fellow; *Richard H. McCuen*, Ben Dyer Professor, Dept of Civil and Environmental Engineering, University of Maryland, College Park

Developing a chance-constraint framework for optimization of long-term hydraulic performance of green roofs.

Tri Le, and **Peter Horgan**, Graduate Students, The Catholic University of America; Pradeep Behera, Associate Professor, UDC; Arash Massoudieh, Assistant Professor, The Catholic University of America.

Enhancing stormwater infiltration to restore urban stream hydro-ecological function

Rosemary M. Fanelli, Marine, Estuarine, and Environmental Science Graduate Program, Univ of Maryland Center for Environmental Science; *Karen Prestegard*, Dept of Geology, UMCP; *Solange Filoso*, Univ of Maryland Center for Environmental Science; *Margaret Palmer*, Marine, Estuarine, and Environmental Science Graduate Program.

Removal Of Nitrates And Nitrites From Rural Delaware Water Wells Caused By Agricultural Activities Using Advanced Treatment

William Roper PhD, P.E., Director of Research, Micronic Technologies; *Kelly P. Rock*, Inventor, CTO, Micronic Technologies

Bios of Featured Speakers



George Hawkins is General Manager of the District of Columbia Water and Sewer Authority (DC Water). DC Water provides drinking water delivery and wastewater collection and treatment for the District of Columbia, and treats wastewater for millions in several Maryland and Virginia suburbs. The Authority operates the world's largest advanced wastewater treatment plant at Blue Plains.

Under Hawkins' leadership, DC Water has launched a vast 10-year program to improve aging infrastructure and comply with ever more stringent regulatory requirements. DC Water is designing and implementing three massive environmental projects that total in excess of \$4 billion.

Previously, Hawkins was the first director of the District Department of the Environment (DDOE). Prior, he was executive director of New Jersey Future, and served as executive director of the Stony Brook-Millstone Watershed Association. He held senior positions with the United States Environmental Protection Agency (EPA) and also served Vice President Gore on the National Performance Review. Hawkins is a member of the Bar in Massachusetts and the District of Columbia. He graduated Summa Cum Laude from Princeton University and Cum Laude from Harvard Law School.

Ben Grumbles is President of the U.S. Water Alliance, an educational non-profit based in Washington, DC and committed to uniting people and policy for "one water" sustainability throughout the country. Most recently, he led Arizona's Department of Environmental Quality working on air quality and climate change, energy policy and waste management, water efficiency, and wastewater recycling. Mr. Grumbles served as Assistant Administrator for Water at US EPA from 2003 through 2008. He launched EPA's water efficiency labeling program, WaterSense, and initiatives on asset management, green infrastructure, and water and climate change.

Emily Fishkin is Director, Infrastructure Initiatives at the American Society of Civil Engineers. Emily manages the research and development for ASCE's *Report Card for America's Infrastructure*, the *Failure to Act* economic study series, and oversees related infrastructure and advocacy initiatives. Prior to joining ASCE, she was with the Intelligent Transportation Society of America (ITS-America), the Washington State Transportation Center, and a consultant for the Washington State Department of Transportation. Emily has a BA from Duke University and an MPA from the University of Washington.



Claudia Copeland is a Specialist in Resources and Environmental Policy at the Congressional Research Service, U.S. Library of Congress. In this position she works with Member and Committee staffs of the U.S. Congress, providing information and analysis on environmental protection and related issues, with particular emphasis on water quality and water infrastructure issues. She has degrees from the University of Michigan and the George Washington University. Prior to joining CRS, she worked as a journalist and in the Washington, D.C. office of the law firm of Hunton and Williams.

Jerry Johnson is the General Manager and CEO of the Washington Suburban Sanitary Commission (WSSC), the 8th largest water and wastewater utility in the nation, serving 1.8 million residents in Montgomery and Prince George's Counties in the State of Maryland. Johnson was formerly the General Manager of the District of Columbia Water and Sewer Authority. He has held posts in the City of Richmond, Virginia as Deputy City Manager, Public Utilities Director, Community Facilities Director and as Executive Director of the Metropolitan Richmond Convention and Visitors Bureau in addition to the District of Columbia. He also served as Assistant to the City Manager in Alexandria, Virginia and a Senior Planner for the City of Charlottesville, Virginia. Mr. Johnson holds degrees in Business, Urban Affairs and Economics, and has completed the Kennedy School Senior Executive Program at Harvard. He serves on a number of boards and commissions, holds leadership positions in several national organizations, and has numerous honors and awards to his credit.



The American Water Resources Association National Capital Region Section Leadership 2013-14

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