

Water: Systems, Science & Society at Tufts University
presents the Fifth Annual Interdisciplinary Water Symposium

WATER & CITIES

Shaping the Flow of Our Urban Future



Friday, April 11, 2014

8:00 AM - 5:00 PM

Behrakis Auditorium

Jaharis Family Center for Biomedical & Nutritional Sciences

150 Harrison Avenue, Boston, MA 02111



The 5th Annual Interdisciplinary Water Symposium

WATER & CITIES:

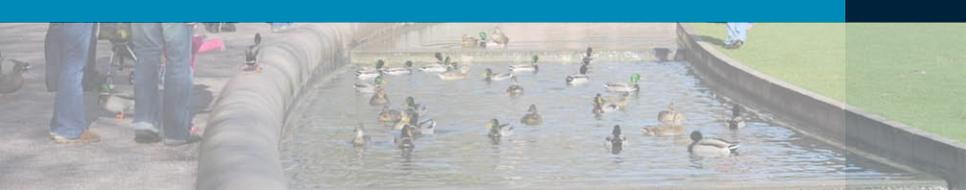
Shaping the Flow of Our Urban Future

Presented by Tufts Water: Systems, Science & Society (WSSS)

Supported by the Tufts University Office of the Provost, the U.S. Geological Survey and the generous donations of our valued sponsors

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LETTER OF WELCOME

Thank you for joining us at the annual Water: Systems, Science & Society (WSSS) Symposium. Our event theme, **“Water and Cities: Shaping the Flow of Our Urban Future,”** is motivated by the fact that over half of the world’s population lives in urban areas, and this number is expected to increase to 70% by 2050. Urbanization has implications for the design of our infrastructure, the health of our ecosystems, the resilience of our cities, and equitable use of our resources. To address these challenges, we have brought together a diverse group of practitioners and academics to discuss how technical solutions, innovative planning, and social action can contribute to successful water management in and around cities worldwide.

Our keynote address features lessons from the New York City Watershed Protection Program and how the city is addressing contemporary challenges posed by climate change, hydrofracking, and aging infrastructure. Panel discussions focus on urbanization and the water cycle, citizen action, urban resilience and disaster management, and regional systems and planning. Each topic was selected to address a different aspect of how we manage our water resources and their relationship to the urban environment. In these panels, we will hear from our experts who represent tremendous breadth and depth of experience innovating in these areas. The discussions will explore the following questions: How is urbanization stressing the water cycle? How do communities mobilize for water policy reform? What are the critical steps and barriers in building urban resilience? How are our growing cities altering water systems and planning on a regional scale? How can we balance competing demands?

Finally, we would like to thank our speakers and sponsors for contributing their expertise and resources to the event and our participants for joining the discussion.

Sincerely,

The 2014 WSSS Symposium Planning Committee:

Ayah Badran, Jennifer Bogle, Matt Capone, Michael Coty, Nelly Czajkowski, Brooke Davis, Margaret Garcia, Amy Hunter, Margaret Holmes, Tania Mercedes Alarcon Falconi, Meg Keegan, Monica Mejia, Nolan Nicaise, Josh Peters, Andrew Petit de Mange, Matthew Simon, Terrence Smith



SCHEDULE

8:00 – 9:00 am	Registration and Breakfast
9:00 – 9:15 am	Opening Remarks
9:15 – 10:30 am	Panel 1: Urbanization and the Water Cycle
10:30 – 10:45 am	Coffee Break
10:45 – 12:00 pm	Panel 2: Water and Society
12:00 – 1:15 pm	Lunch and Poster Session
1:15 – 2:00 pm	Keynote Address: Lessons Learned from New York City's Source Water Protection Program
2:00 – 3:15 pm	Panel 3: Urban Resilience & Disaster Management
3:15 – 3:30 pm	Coffee Break
3:30 – 4:45 pm	Panel 4: Regional Systems and Planning
4:45 – 5:00 pm	Closing Remarks
5:00 – 6:00 pm	Cocktail Hour

Symposium events will be held in the Jaharis Family Center Building and the Sackler Building on the Tufts Boston Campus. Presentations and discussions are in Behrakis Auditorium. Breakfast and the poster session are in the Jaharis Cafe. Lunch and the cocktail hour are in Sackler 116.



SPONSORS



Water: Systems, Science & Society
(WSSS) at Tufts University

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WATER: SYSTEMS, SCIENCE & SOCIETY

WSSS is an interdisciplinary graduate research and education program at Tufts University. It was founded in 2004 to provide the interdisciplinary perspectives and tools to manage water-related problems around the world. Participating students fulfill the WSSS requirements in addition to the student's degree requirements. Upon completion of these activities, students receive a Certificate in Water: Systems, Science, and Society as well as their graduate degree.



The Tufts Institute of the Environment
environment.tufts.edu

The Tufts Institute of the Environment (TIE) is an interdisciplinary university-wide institute that initiates, facilitates, and promotes

Tufts Institute of the **ENVIRONMENT**

environmental education, research, and outreach toward a sustainable future. TIE offers fellowships and travel grants and hosts guest researchers. We also support the Office of Sustainability in its efforts to improve campus sustainability.



Tufts Water Diplomacy IGERT

sites.tufts.edu/waterdiplomacy

The Water Diplomacy program
at Tufts University is producing

interdisciplinary water professionals who think across boundaries, emphasize integration of explicit and tacit knowledge, link knowledge and action from multiple perspectives to help resolve water issues through mutual gains negotiations.



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The Stockholm Environment Institute supports decision-making and capacity building toward sustainable development by providing knowledge that bridges science and policy in the fields of environment and development. Our analyses utilize a variety of integrated applied systems methods.



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KEYNOTE ADDRESS:

Lessons Learned from New York City's Source Water Protection Program

David Warne

Assistant Commissioner
Bureau of Water Supply
New York City Department of Environmental Protection

Mr. Warne is the Assistant Commissioner and Director of Watershed Protection Programs for the New York City Department of Environmental Protection's (NYCDEP) Bureau of Water Supply.

In that role, he is responsible for implementing all aspects of DEP's award-winning source water protection program, including all regulatory and non-regulatory initiatives.

In his more than 20 years at NYCDEP, Mr. Warne has been actively involved in managing the establishment and administration of NYC's \$1.5 billion program to sustainably protect the quality of its drinking water supply. In addition, Mr. Warne manages coordination with nearly 70 communities outside New York City who receive all or a portion of their water supplies from the New York City system.

Mr. Warne graduated from Wesleyan University with a B.A. in English Literature and has an MBA from the Yale School of Management.





PANEL DISCUSSIONS

Panel 1: Urbanization and the Water Cycle

9:15 - 10:30 am

Urbanization transforms the way that water cycles through the environment and places pressure on urban water infrastructure needed to maintain safe water supplies. Expanding imperviousness increases runoff and decreases recharge, density concentrates pollutants, and imported water transforms landscapes. The recognition of urbanization's alteration of the water cycle has motivated efforts to quantify impacts and diagnose their direct causes. It has also sparked a rethinking of urban infrastructure's role as both a cause of water cycle impacts and a means for mitigation. This session will explore contemporary problems and emerging solutions by addressing the following questions: How is urbanization stressing the water cycle? What new tools and techniques are needed to quantify the impacts? How can natural hydrologic processes be built back into the urban landscape?

Terri S. Hogue *Colorado School of Mines*

Scott W. Horsley *Tufts University*

Nicholas Pevzner *University of Pennsylvania School of Design*

Marcus Quigley *Geosyntec*

Moderator: Richard Vogel *Tufts University*

Panel 2: Water and Society

10:45 am - 12:00 pm

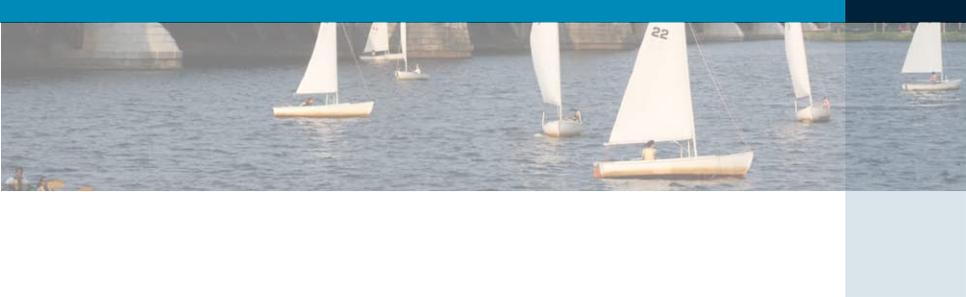
Water is not simply a natural resource. It has social, cultural, economic, and political dimensions and significant implications for the health and livelihoods of the citizens who use it. These dimensions are often best expressed at a grassroots level, where individuals and groups recognize and respond to water-related issues and needs. One example is the role of U.S. citizens in calling attention to the poor health of the nation's water, which helped pave the path for the Clean Water Act in 1972. Grassroots action can also involve international connections, as advocates and experts help communities mobilize and build capacity to address water quality and access issues. This panel will explore society's connections and responses to water by addressing the following questions: What mobilizes individuals to campaign for water policy reform? What is the significance of their role? How do communities and their network of supporters work toward long-term change?

Anamarija Frankic *Green Harbors Project, UMass Boston*

Patrick Herron *Mystic River Watershed Association*

Marion Stoddart *Nashua River Watershed Association*

Moderator: Daniele Latagne *Tufts University*



Panel 3: Urban Resilience and Disaster Management

2:00 - 3:15 pm

Coastal cities across the world face increasingly intense and frequent storm events and significant risks associated with storm surge and flooding. Cities are focusing attention on building resilience and managing the economic, social, and environmental costs of these hazards. The urban resilience and disaster management panel will cover mitigation, preparedness, response, and recovery strategies that are at the forefront of action and discussion in some of our most vulnerable cities, as panelists address the following questions: What are the critical steps and barriers in building resilience? How are past events shaping disaster planning, management, and innovation? What are the critical gaps in our adaptive capacity and how might they be addressed?

Heather Roiter Damiano *New York City Office of Emergency Management*

Vincent Lee *Arup*

Jim Newman *Linnean Solutions*

Sarah Slaughter *Built Environment Coalition*

Moderator: Weiping Wu *Tufts University*

Panel 4: Regional Systems and Planning

3:30 - 4:45 pm

Regional-scale planning requires us to reconceptualize how we define a region and to plan for equitable resource sharing and sustainable development for a multiplicity of stakeholders and demand centers, including urban environments. The strength of regional plans derives from reconciling natural and political boundaries, evaluating current and future supply and demand, recognizing how upstream activities affects downstream quality and use, among other complex considerations. A regional approach is important for ensuring that water needs are met in the future, and particularly for how our growing cities can be confident that their long term needs are met. The regional systems and planning panelists will address topics such as integrated water resources management (IWRM), watershed management, water allocation, utility management, and transboundary water sharing. Questions to be addressed include: What are the key considerations in regional water planning? How can we balance competing demands? How are our growing cities altering water systems and planning on a regional scale?

Kathleen Baskin *Executive Office of Energy and Environmental Affairs*

Patrick Ray *University of Massachusetts, Amherst*

Stephen Estes-Smargiassi *Massachusetts Water Resources Authority*

Moderator: Kent Portney *Tufts University*



Panel 1: Urbanization and the Water Cycle



Terri S. Hogue, PhD

Associate Professor and Vice Chair of the Department of Civil and Environmental Engineering, Associate Director Hydrologic Science and Engineering Program, Colorado School of Mines

Professor Hogue received her B.S. from the University of Wisconsin-Eau Claire and M.S. and Ph.D. from the Department of Hydrology and Water Resources at the University of Arizona. The goal of her research program is to improve the prediction of hydrologic fluxes for better management of water resources, to assess human impacts on the environment, and to mitigate the effects of natural hazards. Dr. Hogue is currently secretary of the Hydrology Section of the American Geophysical Union and was recently appointed to the Board of Atmospheric Sciences and Climate at the National Academy of Science. She is also Director of the new Center for a Sustainable WE2ST at the School of Mines.



Scott W. Horsley

LEED AP, Adjunct Faculty member at Tufts University in the Department of Urban and Environmental Policy and Planning

Mr. Horsley teaches courses in Water Resources Policy, Low Impact Development (LID) / Green Infrastructure and Wetlands Management. He also serves as co-chair for the Water Resources Committee associated with Tufts University Sustainability Council. Mr. Horsley has 25 years of professional consulting experience in the field of water resources management. He has worked as a consultant to federal, state, and local jurisdictions, and private industry throughout the United States, Central America, the Caribbean, the Pacific Islands, and China. Mr. Horsley is a recipient of the 1999 Environmental Technology Innovator Award from the U.S. Environmental Protection Agency for designing constructed wetlands for stormwater and wastewater treatment.



Nicholas Pevzner

Lecturer, Department of Landscape Architecture at the University of Pennsylvania School of Design, and Co-Editor-in-Chief, Scenario Journal

Prior to joining the UPenn faculty, Mr. Pevzner was a senior designer at the landscape architecture firm Michael Van Valkenburgh Associates in New York. Mr. Pevzner's research focuses on the public and civic potential of infrastructure, and on the integration of urban ecological systems and their metrics into design methodology. At UPenn he teaches studios on urban design and infrastructural landscapes. He holds a Bachelor of Architecture from the Cooper Union and a Master of Landscape Architecture from the University of Pennsylvania. He is also the Co-Editor-in-Chief of Scenario Journal, an online publication devoted to showcasing and facilitating the emerging interdisciplinary conversations between landscape architecture, urban design, engineering, and ecology.

Marcus Quigley, PE, DWRE, CPESC

Principal Civil and Environmental Engineer, Geosyntec

Mr. Quigley has more than 17 years of experience working on challenging projects related to surface water hydrology, hydraulics, water quality, and stormwater and erosion and sediment control permitting and management. He is recognized as a national technical leader in stormwater best management practice (BMP) design, research and development, modeling, data analysis, and field data acquisition. Through internally and externally funded research and development efforts, Mr. Quigley helps bring to the marketplace fundamentally new approaches to surface and stormwater real-time control, combined stormwater control/reuse systems, and consumptive use, demand-side feedback management using ambient information systems.



Moderator: Richard M. Vogel, PhD

Professor, Department of Civil and Environmental Engineering, Tufts University

Professor Vogel is a professor of civil and environmental engineering and has been at Tufts since 1984. His primary expertise is in the areas of hydrology and water resource engineering with emphasis on hydrologic and statistical methods for analyzing water resource systems. His current research program focuses upon the areas of natural hazards, watershed modeling and management, water quality, regional hydrology, environmental statistics and the new field of hydromorphology. Hydromorphology deals with improving our understanding of how hydrologic systems have evolved due to anthropogenic influences including climate change, water infrastructure and urbanization.



Panel 2: Water and Society



Marion Stoddart

Founding Director Emeritus, Nashua River Watershed Association (NRWA)

Ms. Stoddart is a citizen leader committed to a lifetime of grassroots organizing and coalition building for positive social and environmental change. In the early 1960s, Ms. Stoddart decided to take on cleaning up the Nashua River which was considered then one of the 10 most polluted rivers in the country. As an advocate for restoring the river, she organized a massive citizen effort. She lobbied successfully for legislation, including the Massachusetts Clean Water Act and petitioned the Federal government for millions of dollars of promised funds to fight the pollution. Ms. Stoddart was one of the co-founders of the Nashua River Watershed Association (NRWA) as well as the former Chairman of the Groton Conservation Commission and the Groton Conservation Trust. In recognition of her work, Ms. Stoddart has received many awards including the United Nations Environmental Programme's Global 500 Award (1987). She was profiled in National Geographic (1995) and



Anamarija Frankic, PhD

Director of the Green Harbors Project, Research Professor, University of Massachusetts, Boston, and Adjunct Professor, Institute of Fisheries and Oceanography, Split, Croatia

Dr. Frankic is a Biomimicry Fellow and a Fulbright Scholar. Her educational background in biology, ecology, limnology and marine science, guided her interdisciplinary work in coastal and watershed ecosystem restoration, nationally and internationally. In 2008, Dr. Frankic and her students established the Green Harbors Project to discover how urban harbors can become healthy, wealthy and sustainable, right here and now. She initiated and established "livinglabs" as part of the applied science education where students and local communities are able to "learn and teach by doing" biomimicry, applying nature's wisdom for sustainable future. Although it is a huge challenge to restore urban and coastal ecosystems, she believes that we do have the knowledge, science, and technology to live harmoniously within natural systems. Her premise is that "the environment sets the limits for sustainable development."



Patrick Herron, PhD

Water Quality Monitoring Director, Mystic River Watershed Association (MyRWA)

Dr. Herron has broad training in ecology and microbiology and, in his role at MyRWA, has actively engaged the scientific research community, community leaders, and regional stakeholders in environmental protection and restoration issues in the watershed. Dr. Herron is the steward of many scientific programs that benefit from the participation of over 50 volunteers and interns who collect water quality samples to track conditions in the watershed. Since joining MyRWA, Patrick has initiated programs that include river herring fish counts and habitat assessments, development of online data portals and efforts to eradicate the invasive plant, water chestnut from the Mystic River. He is co-chair of the EPA Mystic Steering Water Quality Subcommittee and was awarded an EPA Merit award in 2012 for work on behalf of the Mystic River.



Moderator: Daniele Latagne, PhD

Assistant Professor, Department of Civil and Environmental Engineering, Tufts University, and Usen Family Career Development Professor

Dr. Lantagne earned her bachelor's and master's degrees in environmental engineering from the Massachusetts Institute of Technology in 1996 and 2001. She received her Ph.D. from the London School of Hygiene and Tropical Medicine in 2011. Between her degrees she worked as a Public Health Engineer at the Centers for Disease Control and Prevention (2003-2010) and the Programs Director of the Ipswich River Watershed Association (1997-2000). She comes to Tufts from a Post-Doctoral Fellowship in Sustainability Science at Harvard's Kennedy School of Government. Since 2000, she has provided technical assistance to, and evaluation of, water treatment programs in more than 40 countries in Africa, Asia, and Central/South America.



Panel 3: Urban Resilience and Disaster Management

Heather Roiter Damiano

Director of Hazard Mitigation at the New York City Office of Emergency Management (OEM)

Since joining OEM in 2007, Ms. Damiano has led the development and execution of various plans and tools related to emergency management and resiliency, including the implementation of the first Federal Emergency Management Agency (FEMA)-approved NYC Hazard Mitigation Plan. This ongoing effort has given her expertise in assessing NYC's risks from hazards and leading the City's coordination for FEMA's hazard mitigation grant programs. Ms. Damiano previously worked at the NYC Housing Authority. She holds a B.S. in Demography from the University of Wisconsin-Madison and a M.S. in Urban Planning from Columbia University.



Jim Newman

Founder and Director of Metrics, Linnean Solutions

Linnean Solutions provides environmental analytics and benchmarking for corporate, institutional, and municipal clients. Linnean's work includes ecosystem services assessment, life cycle assessment and embodied carbon studies, and site benchmarking for pre-development studies. Previous to Linnean, Mr. Newman was with BuildingGreen, during which time he led the development and introduction of most of BuildingGreen's online products; a role that ran from customer interviews through product development and marketing planning to managing technical development and creating sales systems. Mr. Newman helped found the Massachusetts Chapter of the USGBC, first creating a membership organization for green building professionals, and then, moving that organization into Chapter status with the USGBC. He is also a founding Board member of the Resilient Design Institute, created by Alex Wilson of BuildingGreen, to pursue research and education on resilience in the built environment.



Vincent Lee, PE, LEED AP, ENV SP

Associate, Arup

Mr. Lee is an associate in Arup's New York office and is one of the team leaders of the civil engineering practice. He has more than 15 years of experience in sustainable site development, green infrastructure and water management, and has led multi-disciplinary engineering teams in the design of numerous high-performance, LEED certified and award-winning buildings, communities and city-scale planning projects. He

holds a BS in Civil and Environmental Engineering from Pennsylvania State University and an MS in Civil Engineering from New Jersey Institute of Technology, and is a Licensed Professional Engineer in multiple states.



Sarah Slaughter, PhD

President, Built Environment Coalition

The Built Environment Coalition is a research and education nonprofit organization focused on sustainability and disaster-resilience for the built environment. Dr. Slaughter was recently the Associate Director for Buildings and Infrastructure in the MIT Energy Initiative, and co-founder and faculty head of the Sustainability Initiative in the MIT Sloan School of Management. Previously, Dr. Slaughter was founder and CEO of MOCA Systems, Inc., and a professor in the MIT Department of Civil

and Environmental Engineering. Earlier, she was a professor in the Department of Civil and Environmental Engineering at Lehigh University. She received her PhD, SM, and SB from the Massachusetts Institute of Technology.



Moderator: Weiping Wu, PhD

Professor and Chair of the Department of Urban and Environmental Policy and Planning, Tufts University

Dr. Wu holds a Ph.D. in Urban Planning and Policy Development from Rutgers University, and a Master's degree in Urban Planning and a Bachelor's degree in Architecture from Tsinghua University (China). Her research is concerned with how migration affects the socio-spatial reconfiguration of cities, how migrants access the full range of citizenship

rights, and how planning and policy influence cities' economic vitality and infrastructure building.



Panel 4: Regional Systems and Planning



Kathleen Baskin

Director of Water Policy, Executive Office of Energy and Environmental Affairs

At the Executive Office of Energy and Environmental Affairs (EEA), Dr. Baskin develops and implements state water policy on issues such as flow and habitat alteration, stormwater management, water quality, and water supply allocation. She managed the MA Climate Change Adaptation Advisory Committee and preparation of the MA Climate Change Adaptation Report, and is currently chairing the Adaptation Subcommittee of the Global Warming Solutions Act Implementation Advisory Committee. She is EEA's lead advisor for the MA Sustainable Water Management Initiative, which is promoting protection and sustainable management of water resources for ecological needs and economic development. Before joining EEA, Ms. Baskin developed and directed technical research programs and established watershed management priorities at the Charles River Watershed Association and was a consultant at an international engineering firm. She



Patrick Ray, PhD

Researcher, Hydrosystems Research Group, Department of Civil and Environmental Engineering, University of Massachusetts, Amherst.

Dr. Ray's current research interests center on attempts at improving the robustness of water systems to change (esp. climate change), and explorations of the economics of water development alternatives (e.g. proposed development on the Brahmaputra River in China / India / Bangladesh). Much of his previous experience has been centered in the Middle East where he lived for 3 years with his family. He has been the primary investigator on two academic studies of water systems stochastic optimization in the Middle East: city planning in Beirut, Lebanon, and Amman, Jordan. For Amman, the water system adaptation tool first assessed the likely impacts of climate and demographic change on the city, and then suggested a range of robust adaptation strategies. Dr. Ray has also performed a number of tasks as a professional consultant to the World Food Program, the UNDP-Jordan, and the Millennium Challenge Corporation, among others.



Stephen Estes-Smargiassi

Director of Planning and Sustainability, Massachusetts Water Resources Authority (MWRA)

Mr. Estes-Smargiassi has a Bachelors of Civil Engineering from Massachusetts Institute of Technology and a Masters in City and Regional Planning from Harvard University. In his 26 years at the MWRA, he has lead or participated in a wide variety of water resource and water quality initiatives. He has been active in research on water resource issues and climate change for over 20 years, and has worked with the EPA, Army Corps, Congress, National Center for Atmospheric Research, and Water Research Foundation on this topic. He is leading MWRA's collaborative efforts to understand the implications of climate change on the region's water and wastewater systems, and develop ways to successfully adapt. His group recently completed an integrated master plan to prioritize and schedule improvements to the region's water and sewer systems.



Moderator: Kent Portney, PhD

Professor of Political Science, Tufts University

Dr. Portney is also Faculty Research Affiliate and Director of Water and Ocean Research Program at the Center for International Environment and Resource Policy (CIERP), Fletcher School of Law and Diplomacy, and Adjunct Professor in the Jonathan M. Tisch College of Citizenship and Public Service. He teaches courses in environmental politics and policy, water policies and politics, sustainable cities, methodology, judicial politics, political behavior, and survey research. He is the author of several books, including *Taking Sustainable Cities Seriously: Economic Development, the Environment, and Quality of Life in American Cities*, (2013). Professor Portney was recipient of the American Political Science Association's 1997 Rowman and Littlefield Award for innovative teaching in Political Science. He also received the APSA section on Information Technology and Politics Award for best instructional software.



POSTER COMPETITION

Alternative Technologies for Nitrogen Management in Cape Cod

Peter Ciurczak, Deema Dabbagh, Leah Hermens, Taylor Jang, Bart McDonough, Monica Mejia, Nina Rogowsky (*Tufts University WSSS Cape Cod Practicum*)

Communicating system reliability for hydrologic design and planning

Laura Read and Richard Vogel

Differences between the periphery and core in adoption rates of water-wise irrigation approaches in the Ferghana Valley, Central Asia

Greg Sixt

Education and Environment: Mapping water vulnerabilities in Aida Refugee Camp

J. Olsen, M. Faletra, T. Kulkarni, M. McKenzie, T. Smith, and T. Pols

Evaluating the Capacity of Phosphorus Recovery from Wastewater Biological Phosphorus Removal Process

Yuqi Wang

How do you assess the value of wetlands? An evaluation of the ecological value of wetlands in the City of Quebec using the MACBETH approach

Roxane Lavoie, Julie Deslandes, and François Proulx

In the Valley of the Vapors

Nolan Nicaise

Massachusetts Sustainable Water Management Initiative: Protecting the state's aquatic habitats while providing for society's water needs

Kathleen Baskin

MyH₂O - Water Quality Mapping and Data Visualization in China

Charlene Ren

Oxidation and Biofiltration to Remove Low Levels of Pharmaceuticals and Personal Care Products from Water Supplies

Zachary Angelini and Alyson Packhem



Preliminary Hydrologic Investigation of Park Spring, Willimantic, CT
Kristin Shumbo and Catherine Carlson, Ph.D., *Eastern Connecticut State University*

Separation of Oil-in-Water Emulsion Using Electrospun Mats
Looh Thuin (Simon) Choong

The Effect of Precipitation on Atmospheric Particle Number Concentrations
Matthew Simon, Andrew Shapero, and John Durant

The Feasibility of Constructed Wetlands as a Water and Wildlife Management Strategy in Hawaii
Charles B. van Rees

The strategic use of behavioral science in a hydro-economic model of south Florida water management
Galen Treuer

The UMass Boston 2014 Coasts and Communities IGERT Program
Maria A. Petrova

Transforming Water Research and Education with Cyberinfrastructure
Emily Geosling and Jon Pollak

Urban Flood Frequency under Nonstationarity
Irina Gumennik and Richard Vogel



WSSS students are actively engaged in all aspects of water-related research, including field work locally and abroad, community engagement and education, presenting results and attending conferences.



Water: Systems, Science and Society

An Interdisciplinary Research and Education Program
for Graduate Students at Tufts University

About the Program

“In the 21st century, we have to develop an integrated approach across the disciplines to understand the complexity of water issues worldwide.”

-Rita R. Colwell

To meet this challenge, Tufts University established the Water: Systems, Science and Society (WSSS) Graduate Interdisciplinary Certificate Program. The purpose of the WSSS program is to provide the interdisciplinary perspectives and tools to manage water related problems around the world.

WSSS students take courses in four core areas, attend weekly meetings with fellow students, and participate in cross-cutting seminars. They also undertake a significant interdisciplinary water resources research project, or an Interdisciplinary Professional Experience.

For more information about the program, courses, and research areas, please visit the program website at www.tufts.edu/water.

Participating Schools

- The Graduate School of Arts & Sciences
- The School of Engineering
- The Fletcher School of Law & Diplomacy
- The School of Medicine
- The Friedman School of Nutrition Science & Policy
- The Cummings School of Veterinary Medicine

“The water crisis is a health crisis, it’s a farming crisis, it’s an economic crisis, it’s a climate crisis, and increasingly, it is a political crisis. And therefore, we must have an equally comprehensive response.”

- Secretary of State Hillary Rodham Clinton





SYMPOSIUM ORGANIZATION

2014 Symposium Student Organizing Committee

The 2013 Organizing Committee is comprised of students from Tufts University in the Department of Civil and Environmental Engineering, Friedman School of Nutrition Science and Policy, Department of Urban and Environmental Policy and Planning and the Fletcher School of Law and Diplomacy.

Ayah Badran	Meg Keegan
Jennifer Bogle	Monica Mejia
Matt Capone	Nolan Nicaise
Michael Coty	Josh Peters
Nelly Czajkowski	Andrew Petit de Mange
Brooke Davis	Matthew Simon
Margaret Garcia	Terrence Smith
Amy Hunter	
Margaret Holmes	
Tania Mercedes Alarcon Falconi	

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Timothy Griffin, Friedman School of Nutrition Science and Policy
Rusty Russell, Department of Urban and Environmental Policy and Planning

Tufts Institute of the Environment Staff

Antje Danielson, Administrative Director
Theresa Silver, Administrative Assistant



ACKNOWLEDGMENTS

The 2013 Symposium Student Organizing Committee would like to extend their gratitude to those whose support and participation has been essential:

All speakers and panel participants

Poster presenters

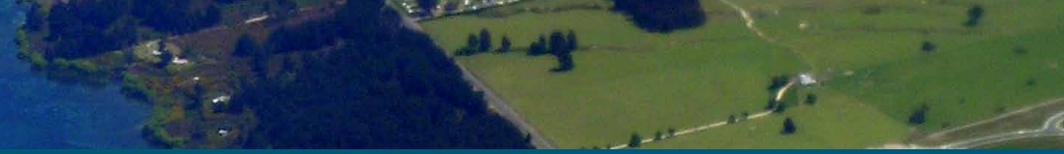
WSSS students and participating faculty

Thersa Silver

Devyn Powell

Tufts Facilities





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