The Glass Half Full:
Valuing Water in the 21st Century

Friday, April 27, 2012
8:30 am - 5:00 pm
51 Winthrop Street, Medford, MA 02155
Tufts University
www.tufts.edu/water/symposium
Our conference theme, “The Glass Half Full: Valuing Water in the 21st Century”, is motivated by the increasing necessity to unify the concept and methodologies of valuing water. The theories and practices of water valuation currently vary across disciplines, and may differ depending on geographic, socioeconomic, and cultural factors. Today, two keynote speakers and three panels of esteemed water experts will provide key insights on the issues of valuing water, creating a discussion platform that reaches across a variety of academic disciplines.

We thank our keynotes, panelists, sponsors, and conference attendees in joining us today as we explore a variety of issues around water valuation, including environmental flows, extreme water events, and water quality. Join us as we explore the following questions throughout the day of the conference: How do we reach across disciplines to create common measures for valuing water? Does water valuation help us identify the most cost effective solutions to manage extreme water events? Can water valuation help policymakers identify optimal solutions for maintaining clean water supplies, for both developed and developing nations?

We are excited to have such a diverse gathering of people with water knowledge with us today, and we encourage you to join the conversation during both formal and informal events. Thank you for attending the third annual interdisciplinary water symposium at Tufts University!

Yours Sincerely,

The 2012 Water Symposium Planning Committee:
Negin Ashoori, Jeff Bate, Andrea Brown, Will Farmer, June Hart, Jessica Pica, Ana Rosner, Jennifer Shen, Zack Smith, Scott Steinschneider, and Rose Yuan Wang
Schedule

8:30 - 9:05 am  Registration and Breakfast
9:05 - 9:15 am  Opening Remarks: Rich Vogel and Paula Rees
9:15 - 10:00 am  Morning Keynote Address: Jerome Delli Priscoli
10:00 - 11:00 am  Panel 1: Value of Clean Water
                  Challenges of water sanitation in the developed and developing world
11:00 - 11:15 am  Break
11:15 - 12:15 pm  Panel 2: Scarcity & Floods
                  Managing the Extremes
12:15 - 1:30 pm  Lunch with Poster Session and Networking Session
1:30 - 2:15 pm  Afternoon Keynote Address:
                  Ximing Cai
2:15 - 2:30 pm  Break
2:30 - 3:30 pm  Panel 3: The Value of Environmental Flows
3:30 - 3:45 pm  Closing Remarks:
                  President Anthony P. Monaco, Tufts University
3:45 - 3:50 pm  Student Poster Award Winners Announcement
3:50 - 5:00 pm  Networking Cocktail Hour

All Symposium events take place at:
51 Winthrop, Medford MA 02155

Primary Sponsors

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The Department of Environmental Protection is the state agency responsible for ensuring clean air and water, the safe management of toxics and hazards, the recycling of solid and hazardous wastes, the timely cleanup of hazardous waste sites and spills, and the preservation of wetlands and coastal resources.

The USGS is proud to support the WRRC at UMass Amherst. The USGS is a science organization that provides impartial information on the health of our ecosystems and environment, the natural hazards that threaten us, the natural resources we rely on, the impacts of climate and land-use change, and the core science systems that help us provide timely, relevant, and useable information.

The Tufts Institute of the Environment (TIE) is an interdisciplinary university-wide institute that initiates, facilitates, and promotes environmental education, research, outreach, and service toward a sustainable future.
Dr Delli Priscoli is senior advisor USACE at the Institute for Water Resources. For 30 years he has designed and run social assessment, public participation and conflict resolution research and training programs. Dr Delli Priscoli is a skilled mediator and facilitator and works throughout the world.

He serves on the Board of Governors and the Bureau of the World Water Council, the Inter-American Water Resources Network and works with, and has helped found, several other world associations such as the International Association for Public Participation, the World Water Council and the Global Water Partnership. Dr Delli Priscoli has been advisor to the World Bank on water policy and to all of the UN water related agencies on water policy issues. He was an original member of the U.S. delegation to the middle east Peace talks on water. He has advised all the US major commands, US Department of State and most of the US intelligence agencies on water and security. Dr Delli Priscoli co-chaired the DG of UNESCO’s world commission on Water and Freshwater Ethics.

Dr Delli Priscoli is author of many articles and books including Water and Civilization and a new volume from Cambridge U Press, Transforming Water Conflicts. He is on science advisory committee of Oxford University water and security as well as the Tufts/Fletcher School water program. Dr Delli Priscoli is a commentator on media shows and is the Editor in Chief of the peer reviewed journal Water Policy. He has played pivotal roles and facilitated many of the dialogues among senior diplomats and NGOs in each of the 5 World Water Forums and in most of the critical key water resources policy meetings over the last 15 years. He was on the international steering committees and the political committees for the World Water Forums of the past decade.

The American Water Resources Association awarded him the Icko Iben award for achievement in cross disciplinary communications in water. He holds degrees in economics and political science and post doctoral studies in theological studies from Tufts and Georgetown Universities.

Ximing Cai is an Associate Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign (UIUC), and a Ven Te Chow Faculty Scholar in Water Resources. Before joining UIUC, he worked as a joint Research Fellow with the International Food Policy Research Institute (IFPRI) in Washington DC as a Postdoctoral Fellow (1999-2002); and as a joint Research Fellow at IFPRI and the International Water Management Institute (IWMI) in Colombo, Sri Lanka (2002-2003).

His current research areas include watershed management, integrated hydrological-ecological-economic modeling, and large-scale systems analysis for research topics on the water-energy-food nexus, and the sustainability of interdependent infrastructures.

Dr. Cai has authored and co-authored over 80 peer-reviewed journal papers, two books and several monographs. He has served as Associate Editor for Water Resources Research and the Journal of Water Resources Planning and Management, and as Editor Board of International Water. He has obtained several awards including NSF Career Award and Best Paper Awards with Water International and the Journal of Water Resources Planning and Management. He has provided consultancy to the World Bank and United Nations on international water resources development, particularly in Africa and China.

He received his B.S. in Water Resources Engineering from Tsinghua University, Beijing, in 1990, M.S. in Hydrology and Water Resources at Tsinghua University in 1994, and Ph.D. in Environmental and Water Resources Engineering from the University of Texas at Austin (1999).
Panel 1: The Value of Clean Water - Challenges of water sanitation in the developed and developing world
10:00 - 11:00 am
Every year, unsafe water, coupled with a lack of basic sanitation, kills at least 1.6 million children under the age of five years. The value of clean drinking water and the value of water in sanitation pose profound challenges to meet global Millennium Development Goals. What are the key challenges of water sanitation in developing and developed countries? Are we moving towards the right direction to improve the situation? What lessons can we learn from past failures? These and other topics will be covered in this panel.

Jeffrey Griffiths Tufts University
Daniele Lantagne Harvard Kennedy School of Government
Elena Naumova Tufts University
Janine Selendy Horizon International
Moderator: Steve Chapra Tufts University

Panel 2: Scarcity and Floods - Managing the extremes
11:15 am - 12:15 pm
Floods and droughts are acts of nature, yet due to human development they have significant impacts on food production, water supply, social welfare of the affected people, and ecosystem resilience. Moreover, climate models predict that our changing climate is likely to cause more frequent and intense extreme events in the future. This panel will explore how we can better manage these extremes in a future world which is likely to be even more uncertain than our present world.

Casey Brown University of Massachusetts Amherst
Stephen Estes-Smargiassi Massachusetts Water Resources Authority
Katherine Meierdiercks Siena College
Peter Weiskel US Geological Survey
Moderator: James Limbrunner HydroLogics

Panel 3: The Value of Environmental Flows
2:30 - 3:30 pm
Research over the past several decades has indicated that human-induced alteration to natural flow regimes in terrestrial waterways has caused significant damage to aquatic and riparian ecosystems. To protect biodiversity, aesthetics, and other ecosystem services provided by natural river networks, environmental flow requirements have been placed on water resource systems and have become an increasingly important consideration in water management planning. These requirements, spanning issues of both quantity and quality, can often be one of the largest burdens placed on water resource projects, imposing tradeoffs between environmental benefits and other benefits accrued through water supply security, hydropower production, flood risk reduction, recreation, and other traditional uses of water and water infrastructure. This panel examines the value of water for environmental benefits within the context of river management. How can aquatic environmental protection be valued against other societal needs as continued urbanization and other global changes increase pressures at the interface between nature and society?

Kathy Baskin Massachusetts Executive Office of Energy and Environmental Affairs
Sharon Davis Murray-Darling Basin Authority and Harvard University
Robert Johnston Clark University
Mark Smith The Nature Conservancy
Moderator: Bill Moomaw Tufts University
Panel 1: The Value of Clean Water

Moderator: Steven C. Chapra, PhD

Professor Civil and Environmental Engineering; Louis Berger Chair in Computing and Engineering, Tufts University

Professor Steve Chapra holds the Berger Chair in the Civil and Environmental Engineering Department at Tufts University. He has published over 150 papers, reports and software packages, and has authored seven textbooks. His scholarship focuses on surface water-quality modeling and advanced computer applications in environmental engineering for which he has received a number of awards including the Rudolph Hering Medal and the Chandler-Misener Award. Finally, he has been recognized as the outstanding teacher at Texas A&M, the University of Colorado, and Tufts and is the first recipient of the AEESt Wiley Award for Outstanding Contributions to Environmental Engineering and Science Education.

Jeffrey Griffiths, PhD

Professor, Department of Public Health and Community Medicine, Tufts University

Dr. Griffiths is a professor at Department of Public Health and Community Medicine at Tufts University. His research includes: the human, animal, and environmental epidemiology of the emerging pathogen Cryptosporidium; development of an ultrastable measles vaccine for use where there are is no refrigeration or during emergencies; and the influence of malnutrition and environmental factors, such as air pollution and heavy metals, on common infectious diseases such as diarrhea and pneumonia. Dr. Griffiths has a long interest in waterborne diseases, ranging from research on the biology of the pathogens to their epidemiology and to public policy and regulation.

Daniele Lantagne, PhD

Giorgio Ruffolo Research Fellow in Sustainability Science, Harvard

Daniele Lantagne is currently a Research Fellow at Harvard’s Kennedy School of Government and will be joining the Tufts Faculty in September 2012. Over the past ten years, she provided technical assistance and evaluation of household water treatment implementations in more than 50 countries worldwide. She is an environmental engineer (MIT BS 1996, MIT M.Eng. 2001, PE 2003) and received her PhD from the London School of Hygiene and Tropical Medicine in 2011. She began working in developing countries while earning her Master’s degree, and continued teaching in the Department of Civil and Environmental Engineering at MIT until she joined the Centers for Disease Control and Prevention (CDO) in 2003.

Elena Naumova, PhD

Professor, Department of Public Health and Community Medicine, Tufts University

Dr. Naumova - a statistician working at the interface of environmental epidemiology, water quality and sanitation - joined the Tufts University School of Engineering to bring together researchers from Tufts schools and spearhead innovative interdisciplinary research projects. Her area of expertise is in modeling of transient processes applied to infections sensitive to climate variations and extreme weather events. She facilitates the use of novel data sources, including remote sensing and satellite imagery to better understand the nature, ecology, and etiology of water-related diseases. She collaborates with scientists and public health professionals in India, Kenya, Ecuador, Japan, Canada, UK, and Russia.

Janine Selendy

President, Horizon International

Janine M. H. Selendy is Founder, Chairman, President and Publisher of Horizon International, a non-profit organization based at Yale University which works to find and advance solutions to health, environmental and poverty issues. Selendy compiled and is Editor of “Water and Sanitation Related Diseases and the Environment: Challenges, Interventions and Preventive Measures, published by Wiley-Blackwell in collaboration with Horizon International, written by 59 experts. She is principal editor and publisher of the Horizon Solutions Site, http://wwwsolutionssite.org, of Horizon’s oceans and coral reefs program at Horizon Magic Porthole, and producer of 20 international television documentaries available at www.horizoninternationaltv.org and jselendy’s YouTube channel. Selendy has lectured at Yale, Harvard, Johns Hopkins Bloomberg School of Public Health, among others, participated in forums and consulted for government and NGOs including the World Health Organization, World Bank, UN, and Pakistan.
Panel 2: Scarcity and Floods

Moderator: James Limbrunner, PE, PhD
Senior Water Systems Analyst, Hydrologics, Inc.

James Limbrunner is a Senior Water Systems Analyst at HydroLogics, Inc., a water resources management consulting firm specializing in water systems analysis, real-time operation, and computer-aided dispute resolution. Dr. Limbrunner studied at Tufts University, earning a Ph.D. in 2008 with research focused on optimization modeling for nonpoint source pollution management. Since joining HydroLogics, he has worked on systems modeling for a range of applications including reservoir operations, capacity expansion, hydropower scheduling, and distribution system energy cost management.

Casey Brown, PhD
Assistant Professor of Civil and Environmental Engineering, University of Massachusetts Amherst

Casey Brown is an Assistant Professor of Engineering at UMass Amherst. He has a Ph.D. in Environmental Engineering from Harvard University and led the water team at IRI for Climate and Society at Columbia University. He has received the Presidential Early Career Award for Science and Engineering, the NSF CAREER award and the Huber Research Prize from the American Society of Civil Engineers. Dr. Brown’s work is funded by the NSF, NOAA, Department of Defense, World Bank and the US Army Corps of Engineers. He is Associate Editor of the ASCE Journal of Water Resources Planning and Management, and chairs the Water Resources Planning under Climate Change Technical Committee of the ASCE Environmental and Water Resources Institute Systems Committee and the Water and Society Technical Committee of the AGU Hydrology Section.

Stephen Estes-Smargiassi
Director of Planning, Massachusetts Water Resources Authority

Stephen Estes-Smargiassi has a B.S. of Civil Engineering from MIT and a Masters in Planning from Harvard. He has lead or participated in all MWRA drinking water quality and treatment initiatives in the past 25 years, and participated in regulatory development activities with the Water Research Foundation. Stephen developed the briefing materials used by MWRA’s Board of Directors to make the treatment technology decision for the metropolitan Boston water system. He managed the MWRA’s successful demand management programs, reducing water demand by over 40 percent; and coordinated protection planning studies for the 400 square mile Quabbin, Ware River and Wachusett reservoir watersheds. His group is currently producing an integrated master plan to schedule improvements to the region’s water and sewer systems.

Katherine Meierdecks, PhD
Assistant Professor of Environmental Studies, Siena College

Dr. Meierdiercks is Assistant Professor of Environmental Studies at Siena College, where she teaches courses in watershed management, environmental field techniques, research methods, and GIS. She received her B.S. in Civil Engineering from Tufts and her Ph.D. in Environmental Engineering from Princeton University. Her research examines the heterogeneities of development patterns in small urban watersheds and the impact of those development patterns on flooding. With support from the Albany County Stormwater Coalition, she is currently working to develop a long-term monitoring and restoration program for the Kromma Kill, a NY Department of Conservation Priority Watershed.

Peter Weiskel, PhD
Associate Director, USGS Massachusetts-Rhode Island Water Science Center

Dr. Peter Weiskel has been a hydrologist with the U.S. Geological Survey since 1992. He presently serves as Associate Director of the USGS Massachusetts-Rhode Island Water Science Center, where he oversees the scientific program, and leads the ground-water studies section. Trained in geology and hydrology, Peter holds a B.A. from Yale and a Ph.D. from Boston University, as well as a Master’s degree in Education from Boston College. Recently, he has worked on the development of indicators of water availability, water use, and human disturbance in watersheds of all scales. He has also served on several advisory committees for the Commonwealth of Massachusetts, including the Climate Change Adaptation Advisory Committee, and Sustainable Water Management Initiative.
Panel 3: The Value of Environmental Flows

William Moomaw, PhD  
Professor of International Environmental Policy, Fletcher School of Law and Diplomacy  
Bill Moomaw is Professor of International Environmental Policy and Director of the Center for International Environment and Resource Policy at The Fletcher School. He received his PhD in physical chemistry at Massachusetts Institute of Technology. Following a 26-year career in science, he began working on climate change and other global issues including water, forests, agriculture and energy in 1988. He is a co-author of the Massachusetts state report on Visioning Forest Futures in 2010 and on climate change adaptation in 2011. He has been an author of 5 Intergovernmental Panel on Climate Change Reports including the Renewable Energy and Climate Change Report published in January 2012.

Kathleen Baskin  
Director of Water Policy, Massachusetts Executive Office of Energy and Environmental Affairs  
Kathleen Baskin is the Director of Water Policy at the Massachusetts Executive Office of Energy and Environmental Affairs. She is managing the state’s climate change adaptation initiative, which released the Massachusetts Climate Change Adaptation Report and the state’s Sustainable Water Management Initiative, promoting protection and sustainable management of water resources for ecological and economic needs. Before joining EEA, Ms. Baskin directed research at the Charles River Watershed Association and was a consultant at an international engineering firm. She has an MS degree in Environmental Engineering and BS degrees in Civil Engineering and Biology, all from Tufts University.

Sharon Davis, PhD  
Harvard Water Security Initiative Fellow; Fulbright Professional Scholar  
Dr Davis is a visiting Fellow and Fulbright Professional Scholar with the Harvard Water Security Initiative. Most recently Sharon held the position of General Manager, Environmental Planning with the Murray-Darling Basin Authority. Her responsibilities included evaluating the environmental water requirements of the Murray –Darling Basin and assessing the social and economic impacts of reduced irrigation water availability. Sharon has a B.A. with Honours and Ph.D from Monash University. She received the Murray-Darling Basin Commission Leadership Award; and was a Member of the Murray-Darling Basin Reform Taskforce She represented the Murray-Darling Basin Commission on the Mekong River Commission/Murray-Darling Basin Commission Strategic Liaison Partnership Mission in 2007.

Robert Johnston, PhD  
Professor of Economics, Clark University; Director, George Perkins Marsh Institute  
Robert J. Johnston is Director of the George Perkins Marsh Institute and Professor of Economics at Clark University. He is an environmental economist specializing in nonmarket valuation, ecosystem services, and the economics of aquatic and marine resources. He is Past-President of the Northeastern Agricultural and Resource Economics Association, Vice President of the Marine Resource Economics Foundation, and on senior advisory committees for the Charles Darwin Foundation, the Communication Partnership for Science and the Sea, the Gulf of Maine Regional Ocean Science Council, Connecticut Sea Grant, and New York Sea Grant. He has published over 100 books, chapters and peer reviewed journal articles.

Mark Smith  
Deputy Director, North America Freshwater Program  
Mark P. Smith is the Deputy Director of the North America Freshwater Program and Great Rivers Partnership for North America for The Nature Conservancy (TNC). Prior to joining The Nature Conservancy, Mark spent six years as the Director of Water Policy at the Massachusetts Executive Office of Environmental Affairs (EOEA) where he worked on a broad range of water issues, including helping to establish a statewide watershed management program. Mark also spent six years with the U.S. Environmental Protection Agency (EPA) in Boston as the project manager for the Casco Bay Estuary Project, part of EPA’s National Estuary Program. He has a master’s degree in Urban and Environmental Policy from Tufts University and a bachelor’s degree from Washington University in St. Louis. He has published over 100 books, chapters and peer reviewed journal articles.
Student Poster Session

Water consumption patterns and enteric infection transmission in rural and urban settings of Vellore, India
Negin Ashoori, Tufts University; Venkat Raghava Mohan, Deepthi Kattula, Vinohar Balraj, Christian Medical College; Elena N. Naumova, Tufts University

Hydrogeochemical assessment of groundwater quality of Punjab and Haryana, India
Vijaya Jyoti, Ellen Douglas, Robyn Hannigan, UMass Boston

Numerical simulation of road salt transport near a public water supply
Jacob Anderson, Boston College

WaSHUp: Innovating water, sanitation, and hygiene upgrades in langrug, South Africa
Macaulay Kenney, Ryan Shooshan, Justin Siemian, Worcester Polytechnic Institute

Reservoir management optimization for large-scale ecological restoration in the Connecticut River basin
Alec Bernstein, UMass Amherst

Drought management and agriculture in the ACF basin: An analysis of management options under climate change
Laura Kuhl and Laura Read, Tufts University

Improving water quality and sanitation in rural Namibian communities: Assessment and development of community-integrated implementation
Valerie Boutin, Caitlin Butler, Samuel Kesseli, Mary Clare McCorry, Worcester Polytechnic Institute

International educators community development pilot program in Peru
Sara Matasci and Laura Read, Tufts University

Parameterizing water retention structures in Kenya’s lake region
Tom Boving, University of Rhode Island

Potential public health and environmental impacts of silver nanoparticles
Anjuliee Mittelman, Yonggang Wang, Kurt Pennell, Tufts University

Rethinking waste: How source-separated urine can foster environmental and economic sustainability in Cape Cod
Lauren Cole and Danilo Morale, Tufts University

Management strategies for transition to sustainable agricultural irrigation
Kevin Mulligan, Yi-Chen E. Yang, David Ahlfeld, Casey Brown, UMass Amherst

Evaluating the usefulness of climate forecast system (CFS) precipitation products for reservoir operations
Rebecca Guihan, UMass Amherst

Stable isotope study of groundwater in arsenic contaminant plume at Shepley’s Hill Landfill, Devens, Massachusetts
Branden Hildum, Yu Xie, Boston College; Robert Simeone, Department of the Army Base Realignment and Closure Division

Fabricating chemically robust chitosan films for water purification
Annul N. Okoye, David P. Gamliel, Jessica D. Schiffman, UMass Amherst

Arsenic speciation and groundwater chemistry at Shepley’s Hill Landfill, Devens, Massachusetts
Brendan Hildum, Boston College

A sustainability index for water resources: Landscape irrigation
Michael Igo, Irrigation Consulting, Inc.

Water plans and climate change plans in the Northeast
An Pham, UMass Amherst

Climate impacted streamflow for the Connecticut River watershed
Austin Polebitski, Kyle O’Neil (Presenter), UMass Amherst

Optimization of dynamically controlled cistern for CSO control and green roof irrigation
Julia Ryan, Ke Li, Casey Brown, UMass Amherst; Marcus Quigley, Geosyntec Consultants
Symposium Registrants

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Student Poster Session

Risk-based trend detection for climate change adaptation
Ana Rosner and Rich Vogel, Tufts University; Paul Kirshen, University of New Hampshire

Water and fertilizer efficiency in rice production: a case study in the Krishna River Basin
Jennifer Shen, Tufts University

Are temperatures rising in groundwater systems? Evaluating the dynamics of heat buffering in hydrogeological systems
Zackary Smith, David Boutt, UMass Amherst

Performance comparison of structural stormwater BMPs for nutrient removal
Tomer Soran, UMass Amherst

Analysis of varying spatial resolution on GCM simulation skill in the northeastern United States
Caitlin Spence, Sarah Whatley, Scott Steinschneider, Ke Li, Casey Brown, UMass Amherst

StreamStats and the National Hydrography Dataset (NHD)
Peter Steeves, US Geological Survey

Enhancing plasma selenoproteins through selenite supplementation in arsenicosis patients in rural Bangladesh
Melanie Valencia, Elena Stokolchik, Ervila Behri, Stephanie Asusta, Mohammad Alauddin, Wagner College

A GIS-based approach to identify priority locations for stormwater best management practices in the Aberjona River watershed
Jeffrey Walker, Glenon Beresin, Anne Sexton, Gabrielle Gareau, Shuo Zhao, Yudan Jiang, Kate Olson, Laura Crossley, Ruizhuo Wu, Rusty Russell, Richard Vogel, Tufts University

Innovation and adoption: Forecasts and water management in the northeastern United States
Sarah Whatley, Casey Brown, Richard Palmer, Jenna Marquard, Erin Baker, UMass Amherst

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Innovation and adoption: Forecasts and water management in the northeastern United States
Sarah Whatley, Casey Brown, Richard Palmer, Jenna Marquard, Erin Baker, UMass Amherst

Student Poster Session

Risk-based trend detection for climate change adaptation
Ana Rosner and Rich Vogel, Tufts University; Paul Kirshen, University of New Hampshire

Water and fertilizer efficiency in rice production: a case study in the Krishna River Basin
Jennifer Shen, Tufts University

Are temperatures rising in groundwater systems? Evaluating the dynamics of heat buffering in hydrogeological systems
Zackary Smith, David Boutt, UMass Amherst

Performance comparison of structural stormwater BMPs for nutrient removal
Tomer Soran, UMass Amherst

Analysis of varying spatial resolution on GCM simulation skill in the northeastern United States
Caitlin Spence, Sarah Whatley, Scott Steinschneider, Ke Li, Casey Brown, UMass Amherst

StreamStats and the National Hydrography Dataset (NHD)
Peter Steeves, US Geological Survey

Enhancing plasma selenoproteins through selenite supplementation in arsenicosis patients in rural Bangladesh
Melanie Valencia, Elena Stokolchik, Ervila Behri, Stephanie Asusta, Mohammad Alauddin, Wagner College

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**Water Resources Research Center (WRRC)**

**Supporting Research, Education, and Outreach on Water Resources Issues**

**Mission**
The Massachusetts Water Resources Research Center (WRRC) is a center within the Environmental Institute whose mission is to support research, education, and outreach on water resources issues of state, regional, and national importance as part of the national system of institutes authorized under the Water Resources Research Act of 1964.

The Center supports faculty research and training of graduate students and is a national leader in the use of volunteers for high quality water quality monitoring of surface waters. The primary objectives of the Center are to:

- Serve as liaison between federal, state, and local representatives and water/environment expertise at UMass Amherst
- Address water resources needs of the Commonwealth and New England through research, creative partnerships, and information transfer
- Actively engage federal and state agencies in interdisciplinary, University water resources research, education, and outreach efforts.

The Center encourages an interdisciplinary approach to resolving state and regional water problems and has involved the University system and many other Massachusetts colleges and universities in Center research.

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Tufts students in the WSSS Practicum are raising money to establish a water quality testing program in the Aida Refugee Camp, where the students will be traveling this June. Contact Franklin Crump (franklin.crump@tufts.edu) for more info.

Please visit the following website to support their cause: http://bit.ly/loVseo
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Tufts students Negin Ashoori (left) and Andrea Brown (above) collecting water samples in Vellore, India