



WATER RESOURCES RESEARCH CENTER

Senator John Kerry

Action:

- Reauthorization of the Water Resources Research Act (WRRRA).
- Funding for the 54 National Institutes of Water Resources (NIWR) as part of the Interior & Environment Appropriations bill at a funding level of \$8.8 million.

Who We Are:

The Massachusetts Water Resources Research Center (WRRC) at the University of Massachusetts Amherst addresses water resource needs of the Commonwealth and New England through interdisciplinary university/college research, creative partnerships with federal, state, and community agencies, and information transfer.

- WRRC receives base funding annually for water research, education and outreach through the WRRRA Section 104(B) grant program.
- We leverage this modest funding by providing seed grants to researchers & faculty at higher education institutions throughout the Commonwealth. This funding provides proof of concept opportunities enabling faculty researchers to apply and win future competitive grants.
- We host an annual conference and a variety of workshops and professional certification and training events to facilitate technology transfer from the universities to stakeholders as well as education of the next generation of water managers.
- UMass has received additional funding through the competitive WRRRA Section 104(G) (regional) grants.
- WRRC also provides a mechanism for agencies to fund critical, short-term research through non-competitive (sole-source) grants.
- In partnership with the U.S. Geological Survey, the water institutes have a 45-year history of rendering assistance to all members of the water-user communities in their states.

Impacts:

If the Water Resources Research Act is not reauthorized,

- WRRC will close and our technology and information transfer programs for water managers and students will end. This means no conference and no opportunity in Massachusetts for students to present their water-related research, for example.
- The 104(B) and 104(G) funding opportunities for faculty across the Commonwealth will end, making it harder for young faculty to obtain seed funding for their cutting-edge research.
- Other funding traditionally awarded to campus researchers via the WRRC will be curtailed.

WRRC Activity in Massachusetts:

Over past 5 years, WRRC had 39 projects, see back of this page for some examples.

WRRC Projects

Pending Projects (FY 2011)	
Monitoring and Understanding Water Quality at Three Potential Charles River Swimming Sites	Focuses on monitoring and understanding water quality at three potential Charles River swimming sites.
Elucidation of the Rates and Extents of Pharmaceutical Biotransformation during Nitrification	Aims to integrate laboratory experiments and mathematical modeling to quantitatively assess the fate of pharmaceuticals during nitrification.
Authentic Research Projects for Undergraduates based on Groundwater Contamination Issues Related to Arsenic	Addresses arsenic pollution in groundwater to train future water resources professionals, by creating authentic research experiences for first-year undergraduates under mentorship from PI's graduate students.
Emerging Contaminants	
Perchlorate Reduction in Groundwater Using Elemental Sulfur	Investigated biological ClO_4^- reduction using elemental sulfur as an electron donor by sulfur oxidizing bacteria.
Habitat	
Stream Continuity Project	Study looking whether road and railroad crossings with streams create barriers for fish and wildlife.
Outreach/Education	
Connecticut River Virtual Tour	For the EPA-funded Tri-State Watershed Initiative in the Connecticut River watershed, the Center is developing a Google-Earth-based virtual tour of the watershed and handheld-computer mobile tours of selected areas where environmental restoration work is taking place.
Stormwater	
Innovative Stormwater Technology Transfer and Evaluation Project	Provides technology transfer information about innovative stormwater Best Management Practices, evaluates studies that test the BMPs performance and posts all the information on a website (www.mastep.net).
Water Quality	
Technical support for the development of a probabilistic water quality monitoring program for Massachusetts	Provide technical support for the design of a probabilistic water quality monitoring program for the Commonwealth of Massachusetts which would provide sufficient data to report on the overall quality of freshwaters in Massachusetts every two years and at the same time provide MassDEP with additional information to assess the condition of water quality in specific lakes and rivers to meet the Commonwealth's obligations under section 303d of the federal Clean Water Act.
Water Quantity	
A Regional Approach to Conceptualizing Fractured-Rock Aquifer Systems for Groundwater Management	Evaluated the availability of water, the source and vulnerability of recharge to water supply wells and the impact of water withdrawals from the bedrock on streams, wetlands, and unconsolidated aquifer systems that overlies the bedrock in order to sustain and manage ground water resources in fractured bedrock.
Estimation of Climatic and Anthropogenic Influences on Freshwater Availability	Conducted a comprehensive analysis of all three essential influences -- climate, land-use, and human water-withdrawal combined -- to understand the relative importance of the interactions among these factors on water scarcity.
Water Treatment	
Impact of Nanoparticles on the Activated Sludge Process: Effects on Microbial Community Structure and Function	Used state-of-the-art molecular techniques to determine the impact of CNTs on microbial community dynamics in batch reactors that model the activated sludge process.