



WATER RESOURCES RESEARCH CENTER

Supporting Research, Education, and Outreach on Water Resources Issues

MISSION

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.

VISION

- ▶ To serve as the liaison between federal, state and local representatives and water/environment expertise at UMass Amherst
- ▶ To address water resource needs of the Commonwealth and New England through research, creative partnerships, and information transfer
- ▶ To actively engage federal and state agencies in interdisciplinary University water resources research, education and outreach efforts

WATER CONFERENCE

The WRRC Annual Water Conference provides faculty, students, regulators, industry, consultants, agencies, non-profits and the general public a forum in which to share water resource research needs, results, and visions for the future.

RESEARCH

Research Grants

The Center supports faculty and graduate student research through the WRIP grant program, which traditionally provides competitive funding for both faculty and graduate student grants across the state.

Research Awards Include:

- ▶ *Characterizing and Quantifying Recharge at the Bedrock Interface* by David Boutt and Stephen Mabee of Geosciences at UMass Amherst
- ▶ *Developing a physically-based and policy-relevant river classification scheme for sustainable water and ecosystem management decisions* by Ellen M. Douglas of Environmental, Earth and Ocean Sciences of UMass Boston
- ▶ *An assessment methodology for differential impact on environmental justice populations of releases of industrial toxics to water in Massachusetts* by Michael Ash of Economics at UMass Amherst

- ▶ *Estimation of Climatic and Anthropogenic Influences on Freshwater Availability* by Yushiou Tsai with Richard Vogel of Civil & Environmental Engineering, Tufts University
- ▶ *Monitoring and Modeling Chromophoric Dissolved Organic Matter in Neponset River and Boston Harbor Using GIS and Hyperspectral Remote Sensing* by Qian Yu of Geosciences at UMass Amherst
- ▶ *Characterization of Wastewater Effluent from Western Massachusetts Publicly-owned Treatment Works Using Metaproteomic Analysis* by Pamela Westgate with Chul Park of Civil & Environmental Engineering at UMass Amherst
- ▶ *Characterization of Flow and Water Quality of Stormwater Runoff from a Green Roof* by Suzanne LePage with Paul Mathisen at Worcester Polytechnic Institute
- ▶ *Bacterial Toxicity of Oxide Nanoparticles and Their Adhesion* by Wei Jiang with Baoshan Xing of Plant, Soil and Insect Sciences at UMass Amherst.

CURRENT PROJECTS

Acid Rain Monitoring Project

The Center coordinates semiannual volunteer sampling of 150 surface water sites across MA for analytes indicative of the long term effects of acid deposition. In addition, the Center makes available the full ARM database (more than 40,000 records from nearly 4,000 lakes and stream collected since 1983) through the web.

Stormwater BMP Clearinghouse

The Center is working on a stormwater clearinghouse project that enables users to search a web based database for stormwater Best Management Practices (BMPs) and find innovative technologies available to treat stormwater.

Information Technology & the Environment

The Center is working with a variety of researchers to examine the concept of Watershed Community, employing a variety of approaches including use of information technology (IT) to enhance individual and community relationships with local landscapes. Additional IT initiatives are underway to promote active learning and dissemination of research and information.

The Stream Continuity Project

The Center is working with UMass Extension to inventory and address barriers to fish movement and stream continuity created by road crossings, and maintains a database of New England crossings surveys.

Blackstone River Water Quality Study

The purpose of this study is to assess existing water quality conditions, identify sources and quantify pollutant loads to the river, develop modeling tools for determining the fate and transport of nutrients along the river, and utilize these tools to evaluate the effectiveness of various management strategies (both point- and nonpoint source controls) for improving water quality and ecosystem health along the Blackstone River.

Tri-State Connecticut River Initiative

Staff coordinates volunteers who gather and test water samples from high-use recreational sites along the Connecticut River, as part of a Tri-state Watershed Initiative headed by the Pioneer Valley Planning Commission. An information technology based public outreach campaign will inform the general public and decision makers about water quality issues affecting the Connecticut River and efforts to preserve and restore the river's health.

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