

Applying Knowledge to Improve Water Quality In New England

Our Goal

To improve water quality management through educational knowledge and extension programming that emerges from a research base.

Our objectives are to:

- Facilitate incorporation of science in regionally developed education and outreach programs that improve the quality of New England's water resources in agricultural and rural watersheds.
- Encourage the adoption of behaviors and activities that result in water quality improvement and protection through thematic programming in our seven Focus Areas. The boxes below provide examples of Focus Area Activities.
- Conduct water quality needs assessments for the Region and Focus Areas and report on partnerships and progress in water quality improvement.

- Work with partners to identify, develop and disseminate research-based tools, curricula and educational programs that promote voluntary approaches to local water quality management.
- Serve as a repository for all reports from water quality projects funded by the CSREES National Integrated Water Quality Program (NIWQP).
- Continue to develop and maintain both the NIWQP and the New England Regional Water Program websites.
- Participate in national activities that strengthen the capacity of the NIWQP.

Sustainable Landscaping

The New England Regional Lake Education and Action Program (LEAP) is a coordinated effort of UMaine Cooperative Extension's Water Quality Program, UNH Extension and UVM/Lake Champlain Sea Grant to share lake education programs across state lines. Successes of this program include:

- Maine Youth Team college students installed buffers at eleven different properties on three lakes. They transformed 5000 square feet of lawn to riparian buffers.
- Forty new Watershed Stewards from lakes in central and southern Maine were trained.
- Eight secondary school students completed plantings at nine sites on Lake St. Catherine, Vermont.
- Maine and Vermont initiated Youth Team projects and worked with residents to install vegetated buffer plantings on 21 lakelakefront properties.
- New Hampshire initiated pre-planning discussions for Youth Conservation Corps adoption for a Wakefield, NH watershed group.

Partners: EPA, Home'A'Syst and Farm'A'Syst, and state environmental and Master Gardener Programs.



Volunteer Water Quality Monitoring

In April 2005, the Volunteer Monitoring focus group facilitated *New England Monitoring Summit – Shared Waters*, a collaborative meeting of federal, state, and volunteer water quality monitoring partners. The goal of the summit was to help identify potential approaches for the development of a sustainable support system for volunteer monitoring within the Northeast. Specifically, the summit sought to:

- Identify essential ingredients for successful program management,
- Reach consensus on information and resource needs of all monitoring partners,
- Learn about obstacles that are preventing development of a successful network, and
- Discuss partnership opportunities and how to best plan for the future.

In achieving these goals, participants shared successes and challenges within their respective programs and focus groups discussed solutions for overcoming obstacles. A report focused on those recommendations is due out shortly. Responses to the summit were so positive that we plan to hold these summits on a biennial basis. Participants stated that they intended to learn more about programs they were not previously aware of, or to get more actively involved with volunteer monitoring as a result of what they heard.

Partners: New England Interstate Water Pollution Control Commission, New England Regional Monitoring Collaborative, EPA, NRCS, USGS, NSGO, North American Lakes Management Society, National Water Quality Monitoring Council and state and local water quality programs.



New England Private Well Initiative

A multi-agency New England Private Well Symposium was held in the fall of 2005. Scientists, educators, and policy makers discussed current research and issues critical to private well water protection throughout the region. In an evaluation, at least 70% of respondents reported a significant increase in knowledge in at least one of the symposium topic areas and at least 60% of respondents plan to integrate some knowledge gained at the symposium into their educational efforts within one year. This event is likely to be repeated.

Partners: EPA New England, Water Systems Council, Land Grant Water Resources Centers, American Groundwater Trust, RCAP Solutions, Groundwater Foundation, and state environmental and health departments.



Our Approach

To address the water quality challenges of rural New England, we create locally relevant programs focused on land and community management. We work at both local and regional scales to develop, test and refine programs.

We work with federal, state, university and local partners to create the mix of resources required to solve real-life water quality problems.



Steering Committee: Pete August¹, Dave Dickson², Karen Filchak³, Art Gold⁴, Linda Green⁵, Stephen Herbolt⁶, Elizabeth Herron⁷, Juri Homziak⁸, Scott Jackson⁹, Roy Jeffrey¹⁰, John Jemison¹¹, Alyson McCann¹², Julia Peterson¹³, Laura Wilson¹⁴
 Website: Kelly Addy¹⁵, Aimee Mandeville¹⁶, Alison Millman¹⁷

¹URI, College of the Environment and Life Sciences, Cooperative Extension; ²UConn Extension; ³UMaine Cooperative Extension; ⁴UMaine Cooperative Extension; ⁵UMaine Cooperative Extension; ⁶UMaine Cooperative Extension; ⁷UMaine Cooperative Extension; ⁸UMaine Cooperative Extension; ⁹UMaine Cooperative Extension; ¹⁰UMaine Cooperative Extension; ¹¹UMaine Cooperative Extension; ¹²UMaine Cooperative Extension; ¹³UMaine Cooperative Extension; ¹⁴UMaine Cooperative Extension; ¹⁵UMaine Cooperative Extension; ¹⁶UMaine Cooperative Extension; ¹⁷UMaine Cooperative Extension

This material is based upon work supported by the Cooperative State Research, Education, and Extension Service, United States Department of Agriculture (USDA), under Agreement No. 2004-01130-03108. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the USDA.

Regional Coordination

New England Steering Committee members participated in a Program Design and Evaluation Training conducted by the NOAA Coastal Services Center in June 2005 facilitating program planning in the region.

Emerging Issues in Water Resources in the Northeast, a region-wide conference was held in cooperation with the Massachusetts Water Resources Research Center in October 2005. Researchers presented their latest data on Biological Response and Ecological Impacts, Critical Contaminants, Water Resources Monitoring, Modeling and Assessment, and Protecting and Restoring Water Resources. Much discussion centered on how to engage the public in these water quality issues.



Reducing Phosphorus with Manure Management

- UVM research was key to revising the Phosphorus (P) Index. By identifying fields most at risk for P loss, the Index will help planners and farmers focus their P management efforts where they will best reduce runoff P transport to lakes and streams.
- Current research at UMaine shows that animal manure application can affect the chemical characteristics of the soil which in turn changes P availability in a recent study involving crop residue, manure and biosolid amendments.
- Recent research at UMass on dairy forage systems evaluated the impacts of alternative feed systems, manure handling and storage systems. Results provided accurate methods for measuring nutrient leaching from fields, as well as identified FarmSoft as a useful aid that can be used in comprehensive nutrient management planning.

Partners: EPA New England, Natural Resource Conservation Service, US Geological Survey, USDA Farm Service Agency, American Society of Agronomy, and state environmental and agricultural departments.

Nutrient and Pesticide Management on Organic Farms

The New England Training for Agricultural Service Providers holds a two-day regional collaborative workshop annually in Portsmouth, New Hampshire. This program provides New England agricultural service providers with Certified Crop Advisor (CCA) re-certification credits and encourages these providers to use agricultural best management practices for water quality protection with specific applications to nutrient management, crop management, soil-water management and integrated pest management (IPM). Extension educators and affiliates from various organizations such as the Natural Resource Conservation Service (NRCS) present subject matter that is integrated across all CCA competency areas. Participants are using their knowledge to minimize pollution risks to water quality in their respective states. The 2005 program focused on organic systems and vegetable production.

Partners: EPA New England, Natural Resource Conservation Service, US Geological Survey, USDA Farm Service Agency, American Society of Agronomy, and state environmental and agricultural departments.

New England NEMO

In November 2005, the National NEMO Network, in collaboration with the USDA New England Regional Water Program, held a regional workshop on Low Impact Development (LID) for Northeast NEMO and Sustainable Landscape Program coordinators and their partners. Lecture topics included LID techniques and practices, fitting storm water management principles and practices into natural resource based planning, and current projects at URI: a rain garden and a porous asphalt parking lot. The group toured the new state-of-the-art Storm Water Center at UNH to see various storm water treatment practices, including some LID techniques, in action. Future prospects discussed at the workshop were the need for more demonstration projects; the need for more economic/cost information; the need for more information on maintenance of LID practices; and the concerns of "smart growth" advocates about LID. LID training for small contractors and landscapers was discussed, as was expansion of the upcoming CT NEMO LID database website to possibly include the other states in the region.

Partners: EPA New England, National Estuarine Research Reserve System, National Oceanic and Atmospheric Administration, US Geological Survey, Natural Resource Conservation Service, Sea Grant, and state environmental and planning agencies.

River and Stream Restoration

The Northeast Instream Habitat Program (NEIHP) is a research initiative to improve the sustainable management of running waters in the northeastern U.S. by developing a science base and management tools incorporating quantitative computer simulation techniques. The 2005 incorporation of the NEIHP in the New England Regional Water Program enabled the integration of research into sustained outreach, training, technical assistance, and graduate and undergraduate educational opportunities. NEIHP conducts practical, "on-demand" case studies while training river management professionals and future scientists in habitat modeling. The technical services provided by NEIHP enable New England decision makers to use water resources in a sustainable fashion and target stream reaches for restoration.

Partners: US Fish and Wildlife Service, EPA, National Park Service, US NOAA, state environmental departments, The Nature Conservancy, Trout Unlimited, American Rivers, Pomerag River Watershed Coalition