Applying knowledge to improve water quality

National Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities

National Water Program Impact Report, 2005-2006

Regional Coordination Projects

Integrated Research, Education and Extension Projects

Extension Education Projects

National Facilitation Projects

CSREES

The Land Grant University System

A network that responds to water resource issues by advancing knowledge through research, education and extension projects.

Contents

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National Water Program

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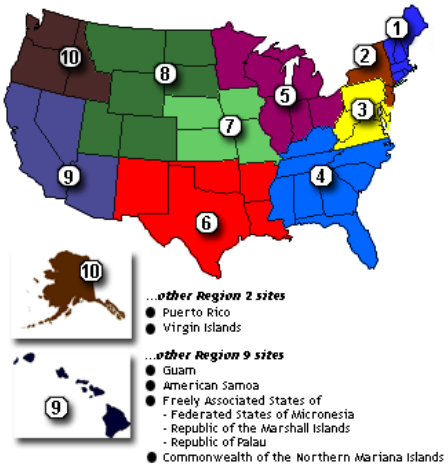
CSREES National Water Program

This impact report provides key examples of how water resource professionals at universities and colleges, in cooperation with CSREES, are working with citizens, communities and partner agencies to address critical water resource problems across the United States.



The goal of the Cooperative State Research, Education, and Extension Service (CSREES) National Water Program is to protect or improve water resources throughout the United States, particularly in agricultural, rural and urbanizing watersheds. The CSREES National Water Program brings university scientists, instructors, and extension educators into more effective and efficient partnerships with Federal interagency programs to address priority water quality issues in U.S. agriculture. A key emphasis of the program is integration of extension, research and education resources to solve water quality problems at the local level.

The program is guided by a unique model for shared leadership that includes representatives from each of the 10 regional projects, representatives from the 1890 and 1994 Land Grant University institutions and the CSREES National Program Leader for Water Quality. This group is called the CSREES Committee for Shared Leadership for Water Quality (CSL-WQ).

The CSREES National Water Program website (http://www.usawaterquality.org/) enhances communication and coordination within the CSREES/University network and with its national and regional partners. The website is designed for scientists, instructors, and extension educators to share and access information about successful water quality improvement programs from across the nation.

This impact report provides key examples of how water resource professionals at universities and colleges, in cooperation with CSREES, are working with citizens, communities and partner agencies to address critical water resource problems across the United States.

For more information about the CSREES National Water Program, please contact the National Program Leader, Dr. Michael P. O'Neill at moneill@csrees.usda.gov; 202-205-5952 or Lisa F. Duriancik, Program Specialist, at lduriancik@csrees.usda.gov; 202-401-4141.

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New England Regional Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities

Selected Regional Impacts

The New England Program centers around 7 regional Focus Areas that tailor the National Themes to the strengths of New England Land Grant Universities' research, education, and Extension programs and capture the strengths of partners and stakeholders to deliver programs that improve the quality of New England's surface and ground water resources.

New England's Focus Areas:

- New England NEMO
- River and Stream Restoration
- Volunteer Water Quality Monitoring
- Agricultural Nutrient and Pest Management
- Sustainable Landscaping
- Animal Waste Management
- New England Private Well Initiative

National Theme: Watershed Management
New England Focus Area: New England NEMO

The National NEMO Network, in collaboration with the USDA New England Regional Water Program and the UNH Stormwater Center, conducted a regional workshop on Low Impact Development (LID) for both the New England NEMO and Sustainable Landscape Program coordinators and their partners. The workshop provided an opportunity for participants to learn about the research and practical application of LID techniques in New England. Twenty-five educators attended the workshop from NEMO and sustainable landscape programs, state agencies, U.S. EPA and the NOAA. States represented included Maine, New Hampshire, Vermont, Rhode Island, Connecticut and New York.

National Theme: Environmental Restoration
New England Focus Areas: River and Stream Restoration

This Regional Focus Area encompasses the work of the Northeast Instream Habitat Program, (NEIHP), which is a partnership among the University of Massachusetts at Amherst, the US Geological Survey, US Fish and Wildlife Service, and the Environmental Protection Agency. This partnership leverages funds from the New England Regional Water Quality Program to enhance research and outreach projects that disseminate knowledge on stream restoration and address the demand for NEIHP services. Highlights include:

- NEIHP provided technical assistance to the Commissioner's Stream Flow Advisory Group of the Connecticut Dept. of Environmental Protection which helps to develop state wide Minimum Flow Regulations.
- NEIHP also conducted two pilot projects to determine Protected Instream Flow and Water Management for the state of New Hampshire. These projects create a methodological foundation for state laws regulating water use.
- Development and implementation of protocols, data forms and training materials for volunteer assessment of road-stream crossings.
- Develop collaborative NEIHP projects with Universities in the Northeastern U.S.
- Incorporation of road-stream crossing standards developed by the River and Stream Continuity Partnership into state and federal policy.

REGION 2

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New York - New Jersey
Puerto Rico - Virgin Islands
Regional Water Coordination Program
A Partnership of USDA CSREES
& Land Grant Colleges and Universities

Selected Regional Impacts

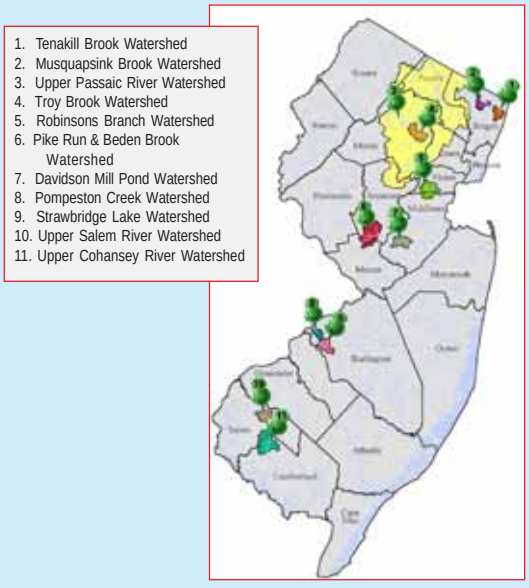
- **Animal Waste Management on Small Farms** ~ The federal Confined Animal Feeding Operation (CAFO) program has been effective, nationally, in preventing pollution from large facilities. However, since most animal operations in Puerto are small, managing waste from these facilities is an important step towards protecting water resources. Regional Water Coordination Program (RWCP) team leaders from the University of Puerto Rico-Agricultural Extension Service (UPR-AES) have been working closely with small animal farmers to help them implement animal waste management systems and management plans that are required by new Commonwealth regulations. In addition, demonstration facilities have been constructed. These initiatives are expediting farmer compliance with regulations in Puerto Rico, which will ultimately lead to a reduction in the contamination of water resources from animal waste origins. Through the collaborative setting of the RWCP, similar training and demonstration initiatives have been launched in the Virgin Islands (by the University of the Virgin Islands-Cooperative Extension Service) and New Jersey (by Rutgers Cooperative Extension and EPA-Region 2) with technical assistance from UPR-AES.

- ***Stormwater Management in Your Backyard*** ~ The Rutgers Cooperative Extension-Water Resources Program (RCE-WRP) has placed significant effort on training over 180 Master Gardeners and Environmental Stewards on the use and construction of rain gardens as part of its *Stormwater Management in Your Backyard* (SMIYB) initiative. As a result of these trainings, six demonstration rain gardens and corresponding ongoing homeowner training initiatives are in place. Through homeowner participation, the trainings are expected to expand upon the approximately 175,000 gallons of stormwater managed by the demonstrations per year. Over 275 landscapers, nursery operators, and parks/ground maintenance personnel were educated as part of the SMIYB program. Through the collaborative setting of the RWCP, the RCE-WRP is working with Cornell University to initiate SWIYB for New York. The Regional Water Coordination Program continues to enhance the capacity of the University of the Virgin Islands' nonpoint source pollution public education initiatives which has been expanded to reach almost 1000 youths and adults over the last fiscal year.

- **Integrating Research, Education and Extension: A Watershed Approach** ~ Currently, the Rutgers Cooperative Extension-Water Resources Program (WRP) conducts 11 watershed research projects in New Jersey; the majority of which are sponsored by a State or Federal grant. As part of the Regional Water Coordination Program's Watershed Management Priority Area, the RCE-WRP has enhanced these efforts by directing extension programming and educational (graduate and undergraduate) efforts into these same watersheds. The same is true in New York, where watershed research projects have been enhanced by providing training to targeted stakeholder groups. In the Virgin Islands, new curriculum and student research activities have been designed around an existing watershed study. This synergistic effort of integrating research, education and extension projects within a watershed has the best potential for truly making a difference in the quality of life of the residents in that watershed.

Demonstration animal waste management facility at a small swine operation in Rio Piedras, Puerto Rico

Master Gardeners construct a demonstration rain garden in Gloucester County, New Jersey



New Jersey watersheds where research is being conducted by Rutgers Coorperative Extension

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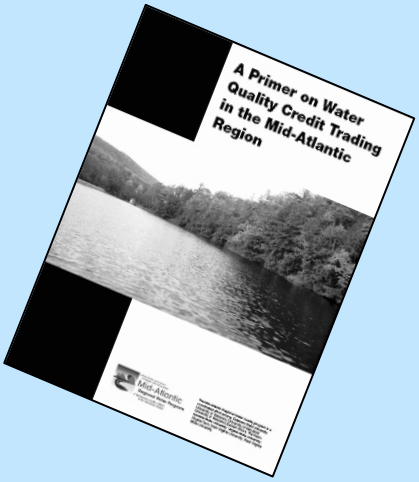
Mid-Atlantic Regional Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities



Selected Regional Impacts

- **Mid-Atlantic Nutrient Management Training Handbook –** Members from the regional program revised the *Nutrient Management Training Manual* to provide a handbook for specific Mid-Atlantic needs. The team updated the manual, originally written 10 years ago by multiple authors using highly technical language, into a more useable, localized guidebook. The Handbook is being adapted by NRCS to serve as the Nutrient Management section of their *National Agronomy Manual*. The Handbook has received a Certificate of Excellence award from the American Society of Agronomy.

- **"Do-It-Yourself" Lawn Care –** The Mid-Atlantic Regional Water Program led negotiations among EPA's Chesapeake Bay Program, Businesses for the Bay, Scotts Corporation and others to reduce nutrient losses from do-it-yourself (DIY) lawn fertilizer applications. These regional actions resulted in a Memorandum of Understanding to reduce the pounds of phosphorus in DIY lawn care products by 50% across the nation. The reductions will be made by Scott's and Lebanon-Seaboard by 2009 and a consumer education program will also be developed for delivery at the point of sale. These efforts showcase a rare example where organizations with such diverse missions can collaborate to achieve a shared goal.

- **Nutrient Trading –** Organizations around the nation are seeking innovative, market-based tools for cost-effective reductions in water pollution, including nutrient trading. However, the success of nutrient trading depends on complex watershed-specific factors. Anticipating the need for citizens and interested management groups to better understand nutrient trading, members of the regional program authored "*A Primer on Water Quality Credit Trading in the Mid-Atlantic Region*," a publication explaining trading systems and the potential benefits and consequences of this complex tool.

- **Manure Management –** To help evaluate the effectiveness of nutrient reduction strategies, program members developed regional nutrient budgets for agricultural cropland. The budgets address nutrient retention and loss due to application and harvest. Recognizing the value of these budgets, the EPA Chesapeake Bay Program used these budgets as a framework for the development of the *Strategy for Managing Surplus Nutrients from Agricultural Animal Manure and Poultry Litter*, a regional plan to manage surplus nutrients in the Chesapeake Bay Watershed. The Regional Program co-hosted an Animal Manure Summit and co-authored the report leading to many new activities.

- **Feed Management –** The Regional Program is working to reduce nitrogen and phosphorus content of dairy waste. Aided by three NRCS Conservation Innovation Grants and foundation funding, we are developing demonstration, education and outreach efforts directed at farmers, nutritionists and veterinarians to enhance feed efficiency while reducing nutrient content of manures. We are also developing a regional Nutrition Management Certification Program. The Certification Program is in coordination with the development of a national program but with a strong regional water quality focus.

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Southern Regional Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities

The Southern Regional Water Program collaborates through 12 Priority Programs targeting the most urgent water resource needs for agriculture and rural communities in the South. Selected outcomes for two of the teams include:

Watershed Restoration Program

Objectives

Regional and multi-agency collaboration by the Watershed Restoration Team have improved the state of scientific knowledge and the practice of ecosystem restoration by developing, evaluating, demonstrating, and teaching effective techniques for restoring wetlands, streams, floodplains, and watershed functions.

Outputs

- Watershed restoration educational events: 12,000 contact-days
- Individuals trained/educated through targeted programs: 2,400
- Educational resources distributed (web-based and hardcopy): 2,200

Watershed Academies, stream restoration workshops, university courses, and demonstrations have been designed and conducted for a wide range of audiences and offered in most states in the Southern Region. The program involves dozens of partners interested in implementing watershed restoration.

Program Outcomes

- **Wetland restoration projects implemented: 24,000 acres**
- **Stream restoration projects implemented: 120 miles**
- **Riparian buffer restoration projects implemented: 45,000 acres**

Nutrient Management Program Team

Objectives

The Nutrient Management Team has improved recommendations and increased implementation of best management practices that not only reduce nutrient loading to surface and ground water, but also enhance production economics.

Outputs

- Nutrient management educational events conducted: 2,250
- Individuals trained/educated through targeted programs: 180,000
- Educational resources distributed (web-based and hardcopy): 260,000

Regional Comparison of Land Grant University Soil Test Recommendations for Nitrogen, Phosphorus and Potassium.

To enhance uniformity of nutrient managment recommendations, and increase collaboration between agencies in conservation program implementation, the Nutrient Management Team completed a national assessment of differences in soil test recommendations across state boundaries. The assessment is posted online at http://srwqis.tamu.edu/downloads/LGU.NMRecommendation.Summary.8.05.pdf and will support significant improvements in recommendations available to agricultural producers, land managers and state and federal land and water resource management agencies.

Program Outcomes

- **Estimated reductions in fertilizer N and P applied: 5,224,000 lbs**
- **Land area impacted by nutrient management plans: 960,000 acres**
- **Behavior change: adoption of soil testing by ag producers increased 60% on 97,000 acres**

REGION 5

Applying knowledge to improve water quality

Great Lakes Regional Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities

The purpose of the Great Lakes Regional Water Program is to enhance the delivery and sharing of successful water programs across our region and the nation. We encourage multi-state and multi-region efforts to protect and restore water resources. We utilize the diverse knowledge bases available in each state, as well as the economies of scale available when states share water research, classroom curricula, and outreach programs and publications. The Program has adopted six priority National Themes: Animal Waste Management, Drinking Water and Human Health, Environmental Restoration, Nutrients and Water Quality, Water Policy and Economics and Watershed Management.

Selected Regional Impacts

Promoting New Partnerships and Cover Crop Choices in the Great Lakes Region

Researchers, educators and farmers from the Great Lakes States and Iowa came together at Innovations in Cover Crops and Perenniality, a multi-state cover crop summit hosted by Michigan State University's Kellogg Biological Station. Many of the participants have been working on pieces of the perennial/cover crop puzzle for years, and the summit provided an opportunity to share their experiences and data and to explore more efficient mechanisms to deliver new information to farmers and stakeholders. The summit also covered practical cover technologies and promoted new partnerships in research, education, and additional resource opportunities. The long-term goal of the project is to create significant changes in farming practices that improve soils, and reduce leaching and nutrient runoff into water systems.

Contacts: Dale Mutch - mutch@msu.edu and Eileen Kladivko - kladivko@purdue.edu

Measuring Social Outcomes of Nonpoint Source Management Programs

USEPA Region 5, state water quality agencies, university researchers and educators, and local water managers have produced pilot methods and guidance for measuring social information and outcomes from nonpoint source (NPS) programs in the Great Lakes Region. As part of this project, over 100 people attended eight region-wide workshops in the fall of 2005. Attendees overwhelmingly reported an increased understanding of social factors in NPS management and how those factors can support NPS management. This project will increase the ability of EPA Region 5 and state agencies to measure meaningful outcomes (such as increases in knowledge, or behavior change) that may precede water quality improvement. A regional approach has allowed states to develop a single shared evaluation system for less cost than individual systems. As a result, states will be able to share data to increase their understanding of the social dynamics of NPS management in the Region. All partners have shown strong and innovative leadership to accomplish project goals. CSREES has awarded additional funding to this group to test the validity of the indicators developed through this project.

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Multi-State Support for Wild Rice and Wild Rice Culture in the Upper Great Lakes Region

The Great Lakes Regional Water Program, in partnership with Ferris State University in Michigan and the Lac Vieux Desert Band of Lake Superior Chippewa, led a diverse coalition that convened the Wild Rice Restoration and Preservation Conference in August, 2006. The conference brought together Native American communities, universities, tribal colleges, nonprofit groups, tribal and local governments, and federal and state agencies to share information and experiences. It developed new partnerships among Land Grant colleges and universities and tribal communities across the Great Lakes Region, and built a solid foundation for future initiatives. Evaluation results indicated that the 109 attendees learned a great deal about the social, economic, and spiritual aspects of wild rice. For example, over 94 percent stated that they learned a significant or great amount about the cultural values of wild rice.

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Applying knowledge to improve water quality

Heartland Regional Water Coordination Initiative

A Partnership of USDA CSREES & Land Grant Colleges and Universities

Regional publications focus on Heartland water priorities

The Heartland Regional Water Coordination Initiative is led by extension/research faculty of land grant universities – Iowa State University, Kansas State University, the University of Missouri, and the University of Nebraska-Lincoln. Four regional publications were completed by Heartland issue teams during 2006.

Agricultural Phosphorus Management and Water Quality Protection in the Midwest

Heartland Water Quality Bulletin, University of Nebraska-Lincoln Extension, RP187.

Wortmann, C., Helmers, M., Mallarino, A., Barden, C., Devlin, D., Pierzynski, G., Lory, J., Massey, R., Holz, J., Shapiro, C. and Kovar, J.L.

Agricultural Nitrogen Management for Water Quality Protection in the Midwest

Heartland Water Quality Bulletin, University of Nebraska-Lincoln Extension, RP189.

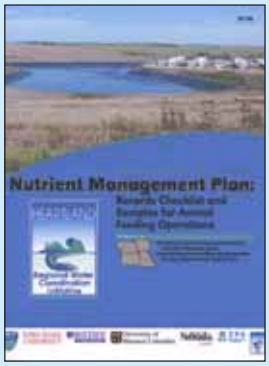
Wortmann, C., Al-Kaisi, M., Helmers, M., Sawyer, J., Devlin, D., Barden, C., Scharf, P., Fergusen, R., Kranz, W., Shapiro, C., Spalding, R., Tarkalson, D., Holtz, J., Francis, D.

In response to needs identified by their multi-agency steering committee, the Nutrient and Pesticide Management issue team focused on BMPs for Phosphorus, in 2005, and Nitrogen in 2006. These multi-state publications, emerging from Heartland-sponsored research roundtables, have been shared primarily with regulatory and technical audiences at Heartland conferences and on the issue team's website. In the future, they will also be incorporated into regional TSP programs. www.oznet.ksu.edu/waterquality/publications.htm

Nutrient Management Plan: Records Checklist and Samples for Animal Feeding Operations

University of Nebraska-Lincoln Extension, RP188.

Koelsch, R. and Benning, J.



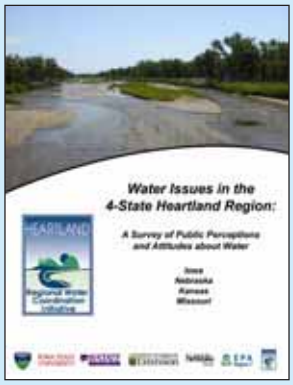
This publication responds to the needs identified by the Manure Management issue team's CNMP Records working group. Forms and examples summarize the record keeping expectations of a nutrient management plan and provide the producer with a tool to review the completeness of current records. It is web-based so that sections can be revised and repackaged to suit specific needs of organizations and individuals.

www.heartlandwq.iastate.edu/ManureManagement/recordkeeping/

Water Issues in the Four State Heartland Region: A Survey of Public Perceptions and Attitudes about Water - Iowa, Nebraska, Kansas, Missouri

Heartland Regional Water Coordination Initiative, Iowa State University Extension Bulletin SP289.

Morton, L.W. and Brown, S.



Implemented in cooperation with Dr. Robert Mahler, University of Idaho, this regional survey gauges citizens' knowledge and willingness to act on water issues. Its results will assist Heartland to develop programs that meet its goal of increasing citizens' capacity to address their water quality concerns.

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Applying knowledge to improve water quality
Northern Plains & Mountains Regional Water Program
A Partnership of USDA CSREES & Land Grant Colleges and Universities

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The goal of The Northern Plains and Mountains Region Water Quality Program is to protect and improve the quality of water resources by facilitating development, delivery and implementation of new and existing practices throughout the Region.

In the Northern Plains and Mountain Region (NPM), development and education of best management practices to protect water quantity and quality is consistently the highest priority in the region. The Northern Plains and Mountains Regional Water Program is impacting the region through the integration of research, education and outreach. Regional priorities include:

- Watershed management through research, monitoring, best management practices, and education.
- Protection of production agriculture water quality through research, geospatial technology, and outreach.
- Water conservation and protection in agriculture, small acreage and urbanizing environments.
- Protection of drinking water for human and livestock health.

Establishment of Water Quality Standards

In response to energy development in the West, the NPM Water Team responded to stakeholder needs by:

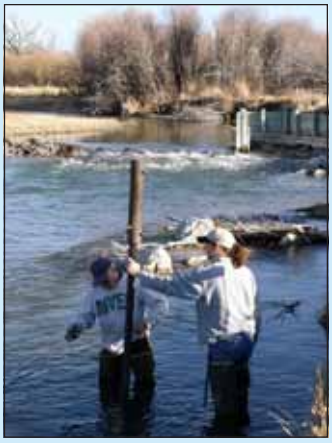
1) Conducting research to expand our understanding of saline and sodic water impacts and management alternatives on semi-arid landscapes.

2) Educating regulatory and natural resource management agencies, litigants, attorneys, consultants, scientists, students, tribal agencies, conservation districts, landowners, and educators.

3) Transferring science-based information to the general public, landowners, media and policy makers impacted by coal bed methane extraction.

Outcomes / Impacts

- Establishment of tribal, state and federal irrigation water quality standards specific to salinity (EC) and sodicity (SAR).



- Development of water management plans and modified procedures / protocols utilized by regulatory and permitting agencies in Montana and Wyoming.
- Leveraged over $2.6 million from State and Federal agencies for coal bed methane produced waters education, research, and extension activities.

Tools for Integrated Watershed Management

To address impacts caused by grazing, irrigated agriculture, fire suppression, introduced plants, rapid growth and urban pressures, regional efforts have focused on developing better watershed management tools, improved monitoring techniques, and increased attention to human behavior change in the Bear River Watershed.

Outcomes / Impacts

- New monitoring strategies and training materials to detect and quantify real changes in water quality.
- Increased knowledge about human dimensions of watershed management, including how to motivate and monitor changes in behavior (funding primarily from a CSREES CEAP project).
- A fully integrated watershed management system (www.bearriverinfo.org), and a pilot pollutant trading program (funding primarily from an EPA Watershed Initiative grant).
- An intensive monitoring network in a subwatershed is being established as a test project (NSF funding).
- Leveraged over $1.7 million to develop online watershed information and outreach, research changes in water quality and sediment transport, develop environmental observatory tools, and enhance water quality Extension efforts.

Applying knowledge to improve water quality

Southwest States & Pacific Islands Regional Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities

Selected Regional Impacts

In many areas of the Pacific Islands, rainwater catchment systems serve as the primary source of drinking water for the local population. Other areas encourage catchments for reserve water to be used during droughts. Proper operation and maintenance of these systems is essential for good health.

A regional initiative to address domestic rainwater catchment systems for potable water supply benefited from cooperation among participating Cooperative Extension programs of the University of Hawaii, Palau Community College, College of Micronesia-FSM, and College of the Marshall Islands. In March 2006, a water quality educational specialist from the University of Hawaii's Cooperative Extension Service along with local hosts from each participating college, conducted "Train-the-Trainer" workshops in Koror, Palau; Weno, Chuuk; Kolonia, Pohnpei; and Majuro Atoll, Marshall Islands. Based on post-workshop surveys, attendees who help people use and maintain their rainwater catchment systems found the information in the workshops very useful, and will incorporate the information into their trainings for other communities.

Additional Highlights

- **Water Reuse** - Reclaimed wastewater has long been used for irrigation of landscapes and field crops, particularly in the western United States. To address this issue, the Region 9 program is currently supporting work on three projects: development of a technical bulletin for the safe use of reclaimed water; development of a user-friendly model to simulate the water, salt, nitrogen, and toxic element movements in soils receiving reclaimed wastewater irrigation; and establishment of demonstration sites for aquaculture effluent use in irrigation. While these products will serve the Region, they will also be useful for anyone in other regions using reclaimed water for irrigation.

- **Pet Recreation and Water Quality -** Is man's best friend fouling the waters? "Zoonoses" – diseases transmitted from animal hosts to humans – have long been attributed to contamination by wastes from high concentrations of animals, such as feed lots; however, companion animals, such as canines, are also a potential source of pathogens and a source of public concern. A 14-month study was conducted to monitor fecal loading from a dog exercise/hiking/cycling recreation area adjacent to a creek flowing through a sedimentation pond and riparian wetland into Lake Tahoe. While fecal loading was found to be significant, particularly at trail junctions and access points, the quality of water flowing out of the study area was improved over the quality of water flowing in; likely due to the restorative actions of the sedimentation pond and wetlands. Folks using this facility can rest easy knowing that their best friends are not causing foul waters to flow into Lake Tahoe.

Applying knowledge to improve water quality

Pacific Northwest Regional Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities

Selected Regional Impacts

Safe Drinking Water Campaign

To address the high level of public interest in the Pacific Northwest about drinking water issues the Region 10 team has initiated a safe drinking water campaign to increase public literacy about potential drinking water contaminants. We offer specific education programs about four important drinking water contaminants each year. This year we are addressing and delivering educational programs to address iron, nitrates, arsenic, and *Cryptosporidium* in drinking water. In addition to specific contaminants we have developed a regional domestic water resource guide that contains up-to-date information about drinking water safety and potential contaminants. This guide is available in a CD format.

Regional Agent Training

We established an annual regional training event for county faculty from Alaska, Idaho, Oregon, and Washington. This two-day workshop provides development opportunities in water and related areas (IPM, sustainable agriculture). This workshop allows county faculty from the four states to network and provides our regional team the opportunity to hear about emerging water issues.

Natural Resource Curricula for Native Americans

Northwest Indian College (NWIC) is a 1994 Tribal Land Grant College and the only tribal college in the states of Washington, Oregon, Idaho, and Southeast Alaska that conducts marine related research and education. Unlike most tribal colleges that serve only one tribe, NWIC serves 43 separate tribes and a Native American population in excess of 125,000 individuals. The NWIC has developed a new natural resource curriculum that emphasizes water and an array of delivery methods for distance education, including self-paced courses, independent learning contracts, and instruction via satellite and remote video links.

Fifth Annual Satellite Conference

The fifth annual regional satellite conference focused on stormwater management strategies in extreme western climates. Video segments were developed and delivered at this conference about stormwater management issues in two cities with little in common — Anchorage, Alaska and Tucson, Arizona. Even though these cities differ greatly in climates and geographic characteristics, they both have significant challenges with stormwater management. The lessons from the case studies covered in this educational program show that stormwater is an important issue in all western communities and that it has a significant impact on water quality.

Project Impacts for:

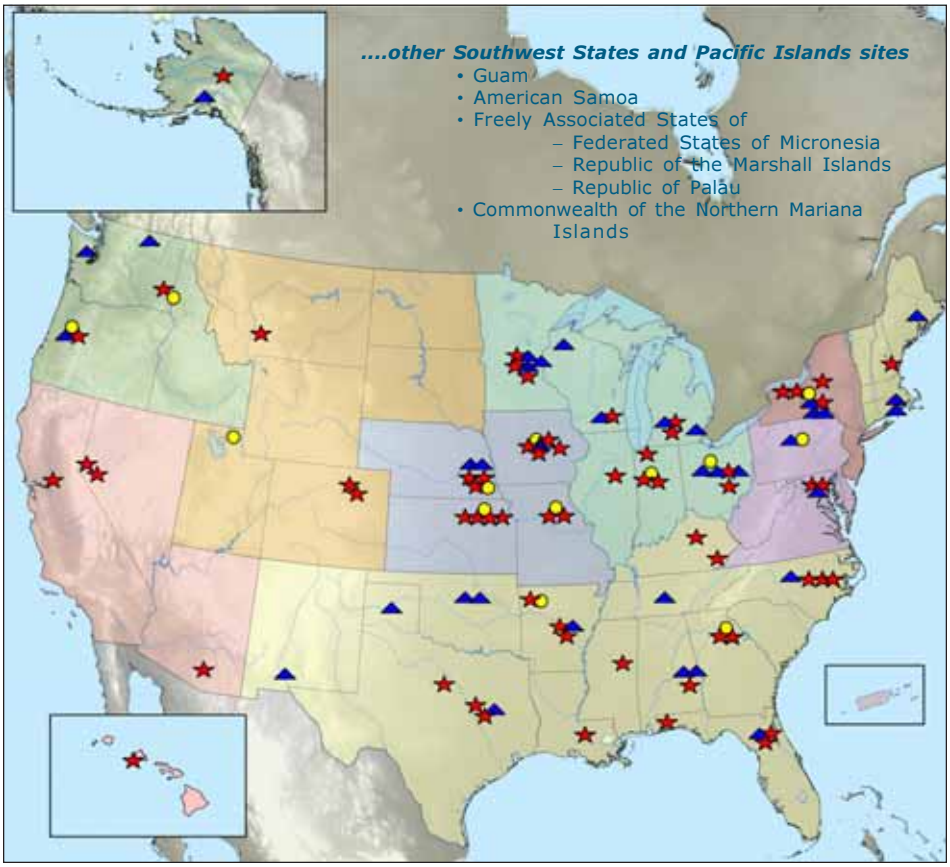
Integrated Research, Education and Extension Projects
Extension Education Projects
National Facilitation Projects

In addition to Regional Coordination Projects, three other types of projects are being supported by AREERA Section 406 competitive grants:

Integrated Research, Education and Extension Projects integrate water research, education, and extension to solve water resource problems at the watershed level. These projects target a specific watershed and utilize an integrated approach to address an existing problem or concern. Integrated projects awarded in 2000-2006 are indicated on the map by red stars. Conservation Effects Assessment Projects (CEAP) awarded in 2004-2006 are indicated on the map by yellow circles.

Extension Education Projects provide leadership and effective partnership for water resource education to help people, industry, and governments prevent and solve current and emerging water resource problems. Extension Education Projects focus on outreach to affect changes in knowledge and management which enhance and protect the Nation's water resources. Projects awarded in 2000-2006 are indicated on the map by blue triangles.

Integrated Research, Education and Extension Projects (red stars) Conservation Effects Assessment Projects (yellow circles) and Extension Education Projects (blue triangles) awarded in 2000-2006.



National Facilitation Projects develop and initiate nationally coordinated programs that contribute to an increase in public understanding and involvement in community decision-making, that facilitate the development of recommendations and tools to inform public policy, and evaluate impacts on water resources (e.g., decisions about land use, land management practices, and waste water management alternatives). The result is more citizen involvement, wider dispersal of information, and more rational analysis of environmental decisions in communities and across the nation.

The following impact reports are key examples of these important project types. Contact persons identified for each program can provide additional information regarding their work.

A Framework for Trading Phosphorus Credits in the Lake Allatoona Watershed

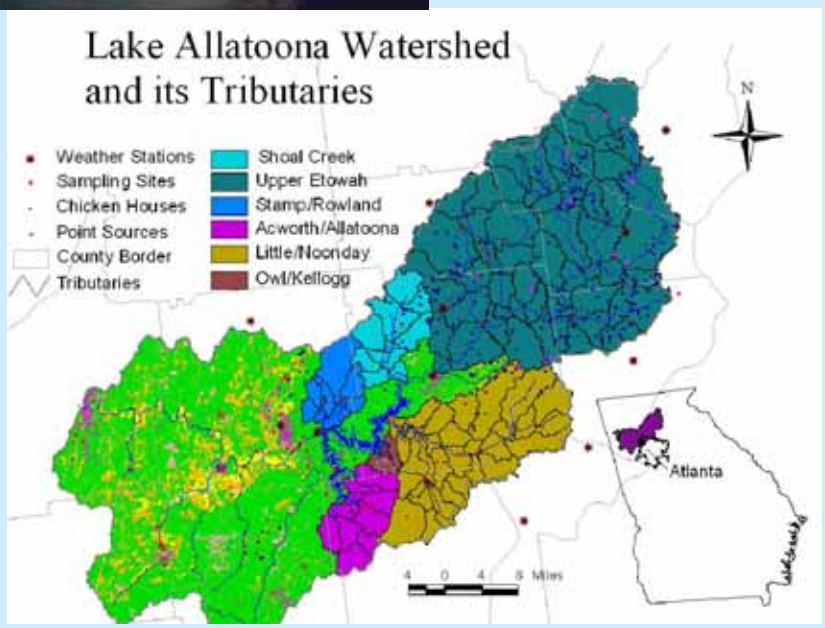
This project assessed the sources of the current phosphorus load to a large, impaired reservoir in North Georgia and assessed how suitable a program to trade phosphorus credits might be.

Situation:

Lake Allatoona is a large reservoir located about 50 km northeast of metropolitan Atlanta. Recent monitoring has shown excessive concentrations of chlorophyll-a and a lake-wide total maximum daily load (TMDL) for P is scheduled to be developed by 2008. A program for trading phosphorus credits within the watershed might be a cost-effective way to achieve reductions in P loading to Lake Allatoona.

Actions:

We determined the sources of the current P load to Lake Allatoona and assessed how suitable a program to trade P credits might be for the watershed using two approaches. First, 12 small watersheds drained by first order streams were monitored for two years using automated stream samplers to determine the annual P load lost from poultry/cattle operations (9 watersheds) and forest land use (3 watersheds). Second, computer models of the six major tributaries to Lake Allatoona were developed using the Soil and Water Assessment Tool (SWAT) model (see watershed map). Preliminary model results have been presented to a stakeholder group and further modifications are being made to the model based on their comments. A survey of poultry/cattle operation landowners is being conducted to determine current practices including the use of BMPs.



Impacts - Outcomes:

Our preliminary model results indicate that point sources declined between the period 1992-1996 and 2001-2004, primarily due to new limits on P for poultry processing plants. The largest non-point source of P was poultry/cattle operations in both periods. This was due primarily to a build up in the level of soil test P in fields where poultry manure had been applied for a number of years. Urban landuse increased significantly as a non-point source of P between the two periods and forest land use declined. The 12 small watershed experiments have shown that P losses from poultry/cattle operations are higher than those from forested watersheds, but there is a very wide range in the losses from poultry/cattle operations due to soil test P levels and implementation of BMPs. A trading program between point sources and non-point sources is a viable option in this watershed because both types of sources contribute a significant portion of the current load to the lake. Since there is a wide range of P losses from farms, in part due to BMPs, a trading program could reduce farm losses.

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Sources and Abatement of Fecal Bacteria in a High Priority TMDL Watershed in NE Kansas

Implementation of improved management practices on two mid-sized cattle operations has led to measurable reductions in peak bacterial loading, which could lead to delisting the watershed's bacteria TMDL.

Demo-Site 1: Cattle moved, grass buffer added

Demo-Site 3: Feed/water moved away from stream

Situation:

Fecal bacteria contamination of U.S. surface waters threatens human health and safety. In Kansas, the Upper Wakarusa watershed has a bacteria impairment (TMDL) and is ranked among the top priority watersheds in the state for restoration.

Demo-Site 2: Stream sampler

Actions:

1. Implement BMPs. Project funds used to help three producers install targeted practices.

2. Monitor stream water quality. Data collected at key locations for three years.

3. Track bacteria sources. Livestock, human, and wildlife sources tracked for each event. Contributions vary by event.

4. Model bacteria fate and transport. SWAT 2005 tests have been promising. Results emerging that detailed source descriptions are critical.

5. Evaluate BMPs. Lab, field, and farm studies have clarified bacteria pollution from winter bale-feeder sites.

6. Educate farmers. Extension programs and one-on-one education enhanced with project funds. Project Tours are planned on demonstration sites.

7. Update KSU courses and educational materials.

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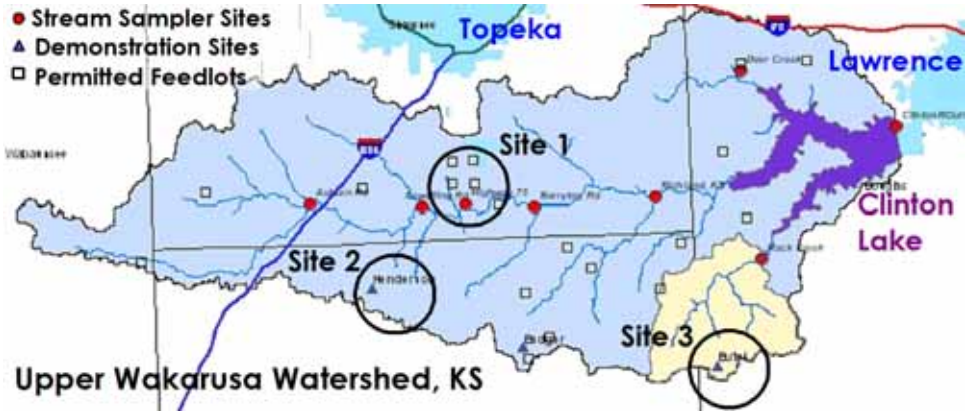
Impact - Outcomes:

Kansas State University investigators, working in the Upper Wakarusa watershed, have detected that implementation of improved management practices on two mid-sized cattle operations appeared to have significantly reduced the peak bacterial loading compared to 2004. Fecal bacterial levels were very low during baseflow conditions during all seasons and at all locations across the watershed. Elevated levels of bacteria were observed in major runoff events in late spring and early summer 2005. Through research, the picture emerging is that the Upper Wakarusa River is impacted mostly by agricultural waste and to some degree by wildlife. The long-term goal of the project is to expand implementation of improved management practices through extension education and partnerships and ultimately have the watershed considered for TMDL delisting in the near future.



Training Environmental Stewards from Mountains to Ocean: A Water Quality Training Curriculum

Situation:

Water quality and quantity education is often targeted at activities associated with a specific land-use. However, water resource management should occur at the watershed level. King County, Washington, with its rapidly expanding urban base, is a model for the difficulties faced in managing water resources in a rapidly urbanizing area, which includes several land-use activities: forestry in the mountainous headwaters, agriculture and rural lifestyles in the lowland floodplains, and urban homeowners. Individuals need to understand how their individual action is important; this requires that they and those educating them understand the interrelatedness of all land-use activities.

Action:

Researched, wrote, piloted, produced, and distributed a core water quality and quantity volunteer training curriculum for use in all volunteer training programs including Extension Watershed Stewards, Extension Livestock Advisors, Master Gardeners, and Extension Forest Advisors.

Showcased effort by the agricultural industry to protect water quality to the general public through an annual event: Harvest Celebration Farm Tour.

Provided livestock owners, small acreage landowners, and family foresters with the latest tools and techniques to best manage their property at Small Farm Expo, a one-day annual event.

Impacts - Outcomes:

Volunteer training curriculum modules were successfully integrated into existing Master Gardener and Extension WatershedStewardship training programs in King County.

Curriculum was distributed to all seven Washington counties with Beachwatchers Programs, and to colleagues from 14 states who attended a nationwide conference for Extension professionals.

Curriculum website (listed below) received nearly 300 visitors and close to 400 curriculum module downloads in the six-month period since the website was posted.

Over 20,000 visitors from urban and suburban areas toured farms as part of the Harvest Celebration Farm Tour between 2002 and 2005. They learned about local agriculture and food systems, and the many ways family farms are protecting water quality. Nearly 60% of surveyed participants in 2005 said that they would share their Harvest Celebration experience with others, a strong indication that the event is making a lasting impression.

Over 4000 visitors attended the Small Farm Expo between 2003 and 2006. In 2006, visitors took advantage of 15 educational talks, 16 demonstrations, 36 animal displays, and more than 55 vendor booths. Of the attendees that filled out our 2006 survey, more than 98% said they would definitely come back to the event next year. 77% said that this event provided them with information they could not easily have gotten elsewhere and 92% said that they would put what they learned to use within the next year.

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A Volunteer Network to Educate Pennsylvania Well Owners

Master Well Owner Volunteers promote improved private well construction and maintenance, leading to safer private water supplies and reduced potential for ground water contamination

Situation: Over three million rural residents of Pennsylvania rely on a private water supply. Surveys have shown that over 50% of these wells, springs and cisterns fail safe drinking water standards. The cause of these problems can often be traced to inadequate construction, poor management or nearby land uses. A network of educated volunteers increases awareness and promotes better construction, location and maintenance of private water supplies.

Actions:

- Eleven Saturday workshops have been offered to volunteers with training on all aspects of proper construction and management of private water supplies.
- 287 Master Well Owner Network (MWON) Volunteers from 60 counties in Pennsylvania have been trained.
- *"Very well presented, informative, and interesting."* (comment from a volunteer at the 2006 Washington, PA training workshop)
- In 2006, volunteers spent nearly 1,000 hours assisting homeowners with questions about private water system management.

Outcomes:

- Since 2004, MWON volunteers have personally educated over 12,000 homeowners with private water supplies in Pennsylvania.
- Another 62,000 homeowners were educated through TV reports, newspaper articles or local newsletters.
- Follow-up surveys with homeowners who interacted with a MWON volunteer showed that 97% found the interaction beneficial, 92% learned at least one new idea to protect their water supply, and 82% had taken action to improve their water supply.

- Many volunteers are currently participating in a research project designed to update information on the occurrence of private well contamination in wells across the state.
- Since the original CSREES 406 grant, the MWON program has received nearly $300,000 in additional grants from federal, state and private project partners to maintain and expand the MWON program.
- Properly constructed wells reduce potential for ground water contamination.

Project Partners

- CSREES Mid Atlantic Regional Water Program
- Pennsylvania Ground Water Association
- Pennsylvania Department of Environmental Protection
- U.S. Environmental Protection Agency Region III
- Pennsylvania Rural Water Association

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National Facilitation Projects

Volunteer Water Quality Monitoring

The Volunteer Water Quality Monitoring National Facilitation Project provides a support system for volunteer water quality monitoring efforts across the country.

Situation: Volunteer monitoring offers Extension a unique opportunity to engage communities in watershed protection and enhancement efforts. Volunteer water quality monitoring programs can be the critical first link that engages the public in watershed stewardship. They improve the understanding of local water resources, encourage individual and community involvement in protection and restoration efforts, and help communities make informed decisions that improve water quality.

We seek to expand and strengthen the capacity of existing Extension volunteer monitoring programs and support development of new ones. We aim for enhanced integration of volunteer monitoring in research, education, and extension activities. Volunteer activities reflect landowner and community water resource goals and values by supporting grassroots efforts and building strong community partnerships. This bottom-up approach ensures that Extension voluntary monitoring programs focus on the needs of diverse stakeholders and address their concerns.

Actions:

This Facilitation Project was undertaken to construct a comprehensive support system for Extension volunteer water quality monitoring efforts nationally. We have:

- Located and linked nearly 50 Extension-based and Extension-associated volunteer monitoring programs in over 30 states.
- Created the listserv CSREESVolMon@lists.uwex.edu, originally as a mechanism of communication among these programs. This listserv now has 325 members!
- Created a flagship website: www.usawaterquality.org/volunteer/. The website contains all the outputs of this project, and provides a portal to and from Extension volunteer monitoring programs.
- Researched and produced topical factsheet modules for the "Guide to Growing CSREES Volunteer Monitoring Programs", both in print and easily downloaded from the website, including many active links. These modules approach one-stop shopping for program coordinators who are interested in growing their programs or for those just starting.
- Conducted workshops at all CSREES National Water Conferences, and by invitation at statewide, regional and other national conferences, each tailored to meet the needs of the audience. Powerpoint presentations are housed on the website to enhance access to the information provided.
- Created an online archive of volunteer monitoring listserv discussions to capture these information exchanges. It currently houses exchanges on over 60 topics.
- Co-sponsored and co-hosted the 2006 National Water Quality Monitoring Conference, helping to develop and present a comprehensive series of workshops and sessions based on input from the volunteer monitoring community nationwide. Also provided support for the more than 100 volunteer monitoring attendees among the nearly 900 conference attendees.
- At the invitation of EPA's Watershed Academy, presented a webcast on "Getting Started in Volunteer Monitoring" that reached over 200 in 34 states and several foreign countries, archived at http://www.clu-in.org/conf/tio/owvolwq_101106/.
- Developed a Wisconsin on-line database for volunteer monitoring data which led to short courses, a discussion listserv, and a factsheet.

Impact - Outcomes:

- Assumed leadership role as a national service provider for volunteer water quality monitoring,
- Enhanced communication among existing Extension volunteer monitoring programs nationwide,
- Reduced the effort needed to start new volunteer monitoring programs or to expand existing programs,
- Lent support and credibility to previously isolated programs,
- Facilitated local data sharing and internet learning,
- Expanded volunteer opportunities due to enhanced local and state capacity for Extension volunteer monitoring programs,
- Strengthened strategic partnerships within the Extension Volunteer Monitoring Network and between CSREES and other agencies, and
- Enhanced recognition of CSREES volunteer monitoring efforts as a viable component of the water monitoring community.

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NEMO

The National NEMO (Nonpoint Education for Municipal Officials) Network is a confederation of programs around the country that educate local land use decision makers about the relationship of land use to water quality and water resource protection.

Situation: **Land use is decided not only by individual property owners, but by community officials sitting on local land use boards and commissions. These officials need information, tools and education to help them do a better job of protecting their water resources as they grow their communities.**

The 31 programs of the NEMO Network educate local land use decision makers about the link between land use and water resource protection. The Network is coordinated by the University of Connecticut Cooperative Extension, which leverages CSREES funding with EPA support to create the National NEMO Network "Hub." The Hub helps to develop new NEMO programs, and works closely with Network members to strengthen existing programs through the exchange of ideas, educational methods, publications and resources.

Actions:

- Conducted over 100 "scoping workshops" to assist multi-organizational collaborations in other states adapt NEMO to their natural resource and land use challenges.
- Provide new programs with a startup kit that includes sample presentations, publications and tips.
- Held an *Open Space Boot Camp* training session to help NEMO programs demystify open space planning for community leaders.
- Provided training for NEMO programs on the *Impervious Surface Analysis Tool* (ISAT), a GIS software "plug-in" module developed by UConn in partnership with NOAA.
- Created the National NEMO Network website (http://nemo.uconn.edu/national), which allows programs to share educational materials, report successes and impacts, connect with a variety of resources and learn about network initiatives.
- Issue a semiannual newsletter that profiles member programs, announces upcoming events and conferences, reports on national policy developments, and provides a status update on the network.
- Manage the National NEMO Network listserv, an interactive forum for NEMO coordinators to share experiences, seek advice and discuss educational approaches.
- Every 18 months, organize the NEMO University (or NEMO U) National Network conference, an opportunity for Network members to develop new educational strategies, collaborate, and share methodologies and research. The fifth conference, Cinco de Nemo, was held October, 2006.
- Hold periodic meetings of the National NEMO Network Interagency Work Group, a diverse group of federal and national stakeholder organizations.
- Issue a biennial Network Progress Report, encapsulating both Network-wide progress and individual NEMO project impacts.

Impact - Outcomes:

- Creation of 31 NEMO programs in 30 states.
- Enhanced communication between member projects, resulting in multi-state educational efforts (such as Lakes NEMO, a product of Maine and Minnesota).
- Innovative, new educational products and techniques from Network members, such as the Northland NEMO's "*Guide to Using Natural Resource Information in Local Decision Making*" and Ohio NEMO's *CampuShed* program to improve water quality practices on the Ohio State University campus, and CT NEMO's Online Community Resource Inventory.
- Expanded educational tools for Network programs, including open space planning education (about 7 programs) and the ISAT watershed analysis tool (about 6 programs), and Basic GIS and Remote Sensing (7 programs).
- Increased funding made available for NEMO Network programs, such as NOAA's $200,000 *Coastal NEMO Enhancement Program* in 2002.
- Increased awareness of Extension's role in assisting community decision makers, through NEMO sessions at non-USDA national conferences (e.g., the American Society of Photogrammetry and Remote Sensing Conference in 2004), agency and organization briefings (e.g., the U.S. Conference of Mayors in 2004), and publications (e.g., the Planning Commissioner's Journal in 2003).

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On the web at http://nemonet.uconn.edu

National Facilitation Projects

The **Water Outreach Education National Facilitation Project** (NFP) promotes the use of education as a critical component of a successful water management strategy. The project provides tools and resources about best education practices (BEPs) for water and outreach professionals including Web-based resources, studies, and reports. Each resource highlights tested education techniques and approaches. The project recently initiated a new facet of this work, Changing Public Behavior (2006-2008), which increases citizen involvement through use of target audience information. The new NFP will train scientists, natural resource professionals, and educators to develop and use target audience information to improve citizen understanding and involvement in community decision-making for water resources. A brief description of each NFP follows.

The Water Outreach Education Project is a collaboration of federal agency clean and safe water partners to develop and promote best education practices (BEPs) for water education and to improve access to education resources and strategies. Project products include:

- Study of Provider Needs
- Literature Search for Audience Specific BEPs
- National Extension Water Outreach Education Web Site, http://wateroutreach.uwex.edu/
- Model Education Techniques: The Essential Best Education Practices
- Searchable Database of Water Education Materials
- Synthesis of Significant Education Research
- A BEP Decision Tree
- "How to Use BEPs" suggestions and resources
- Water Outreach Education Symposium Report and Proceedings (2004)
- Outreach that Makes a Difference! Target Audiences for Water Education - A Research Meta-Analysis (2005)

Information about the Project or these resources is available on the National Extension Water Outreach Education Web site: http://wateroutreach.uwex.edu/

Changing Public Behavior – Increase Citizen Involvement Using Target Audience Information (2006-08) will help water resource professionals apply education and social science research in new and creative ways to encourage the public to adopt environmentally friendly habits. In-person and Web-based training materials are being developed to guide water educators in choosing and using appropriate audience assessment tools. These tools will help educators focus on local interests and conditions when teaching about environmentally appropriate actions for home, business, organization, or community. The project will also provide resources to help water professionals understand the needs and habits of specific or target audiences (farmers, homeowners, landowners, etc.) so they can more effectively provide water management techniques and assist in the local environmental decision process.

These new resources and information about training opportunities will be available at http://wateroutreach.uwex.edu/CPBhomepage.cfm.

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National Facilitation Project
The Environmental Pathogens Information Network (EPI-net)

EPI-net aims to empower stakeholders and policy-makers with the knowledge to make sound decisions about issues associated with the presence of pathogens in the environment

Situation:

The challenges associated with managing microbial contamination of water resources and the roles that science plays in addressing those challenges are at the forefront of water policy discussions across the country. To maximize the effectiveness of information exchange regarding this issue, a National Facilitation Project entitled: **The Environmental Pathogens Information Network (EPI-net)** is being developed and managed at Purdue University.

Actions:

http://www.epi-net.org

The creation of **EPI-net.org** as a keystone web-based organization provides a stable, centralized resource of water-related environmental microbiological contamination information; encourages information sharing; connects a network of stakeholders, regulatory officials, and technical experts; provides a reliable point of reference (methods and data interpretation); and increases our ability to develop a coherent *national* research agenda and good public policy. We developed a nationally representative advisory structure consisting of members from government, academia, and the private sector. The website hosts a wealth of existing environmental microbiology (e.g., *E. coli*) data and information available from both the refereed literature and state and federal sources in an on-line information repository to facilitate data sharing to produce a level of common knowledge that lays the foundation for discussions between the science and stakeholder groups. EPI-net also organizes a series of small workshops on topics related to pathogens in the environment and is writing mini reviews on pathogens-related topics as part of the website.

Impacts - Outcomes:

The project establishes a foundation for collaborative education and outreach efforts to facilitate a widespread understanding of the environmental behavior of pathogenic microorganisms in the environment. The workshops had a great impact on the attendees. The workshops are set up as a class, some of the topics discussed include: Pathogens in the environment, Survival of pathogens and indicator in the environment, and Microbial Source Tracking. We had participants for different government agencies (EPA, USGS, IDEM), universities and other nonprofit environmental organizations. Evaluations were great; participants found these workshops very useful for their research and professional careers. EPI-net is developing more workshop series for the following year.

On the web at:
http://www.epi-net.org

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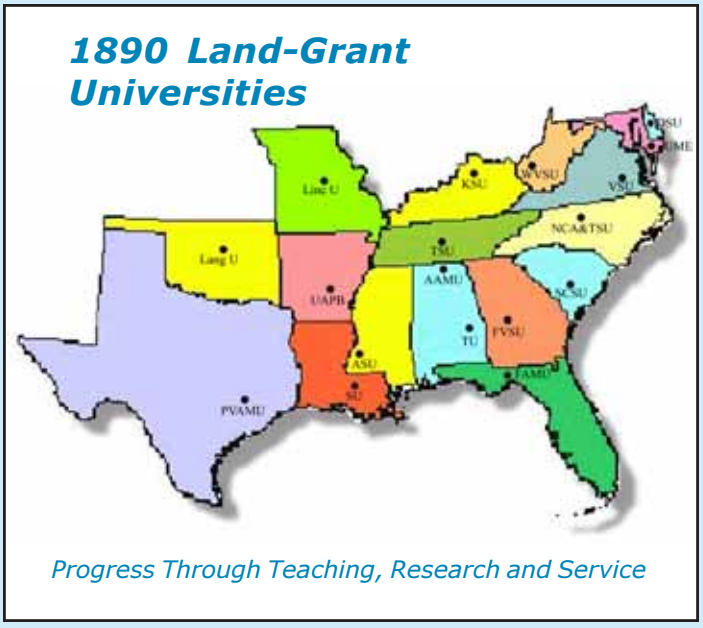
Facilitation of 1890 Institutions' Water Resource Education, Extension and Research Efforts

Recognizing the need to provide water resource programming to underserved audiences in rural and urbanizing communities nationwide, the 1890s established a water resource network of education, extension and research personnel.

Situation:

There is a strong interest in water resource education, extension and research at most of the 1890 Institutions. Recognizing the strong interest in, and commitment to providing water resource programming to underserved audiences in rural and urbanizing communities nationwide, the 1890s established a water resource network of education, extension and research personnel. The coalition is increasing the involvement of the 1890 Land-Grant Universities (LGUs) in the USDA-CSREES National Water Program as well as building on mutually beneficial partnerships among 1994 and 1862 LGUs. Such partnerships build upon common goals and interests shared by minority-serving land grant institutions with water quality programs, while at the same time, drawing upon the diversity of resources and expertise found among the 1862 institutions. The coalition involves ten of the eighteen 1890 institutions that currently have water quality research or extension programs. The other 1890 institutions will be encouraged to join as they begin to build their capacity in the water resource arena.



Actions:

- Developed criteria for the mini-grant awards with the assistance of a program coordination committee. The mini-grant projects will enhance water resource deliverables at 1890 institutions. Four mini-grants were awarded to four of the coalition institutions (Tennessee State University, University of Arkansas-Pine Bluff, University of Maryland Eastern Shore, and Virginia State University).

- Hosted the Southern Region Water Quality Program's Watershed Academy – Nashville 2006. Instructors were water resource professionals from 1862 and 1890 institutions, NRCS, and Davidson County (Nashville, Tennessee). There were 34 participants in all, with 21 participants from 1890s.

Outcomes:

- Enhancement of 1890 research, education and extension capacities in water resources.
- Water resource outreach to communities served by the 1890s.
- Enhanced regional and multi institutional collaboration in water resource research and extension programs.
- Networking across multiple disciplines and institutions.

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Tribal Colleges and Universities National Facilitation Project for Increasing Tribal Involvement in the National Water Program

Water resources on reservations are emerging critical issues in Indian Country. Tribes nation-wide are challenged to develop water programs to address water quality and quantity issues.

Situation:

Tribes across the country are faced with building water programs to address critical emerging water quality and quantity issues in Indian Country. The colleges are building capacity to assist their communities in addressing water issues that are affecting tribal cultures, economies, and their communities' future. The lack of program building mechanisms and institutional capacities limit progress in conserving and improving water resources.

Actions:

- Expanding participation, discussion, and coordination of water issues within the colleges in environmental science, water, technology, and engineering fields.
- Survey of colleges' water interests, needs, and issues.
- Represent tribal college issues with USDA, EPA, NSF, land grant partners, natural resource advisory boards, and the Committee for Shared Leadership.
- Colleges participating at regional and national levels of the National Water Program, and building partnerships with other local, regional, and federal entities.
- Identified priority issues: Drinking water, developing water quality professionals and providing training opportunities for Native American students, developing water quality regulation capacity, toxics, ecological restoration, water quantity for existing and future community, agricultural, and other needs, sharing and developing programs, laboratories, capacity, and funding.

Impacts/Outcomes:

- Expanding participation to fourteen tribal colleges. United Tribes initiating Volunteer Monitoring and mobile testing.
- SKC and Menominee collaborative planning in sustainable resource management.
- Building an upcoming Tribal College Environmental Research Symposium with a water focus.
- Expanding analytical laboratories at colleges at Sitting Bull, Salish Kootenai, and Northwest Indian College.

Participating Institutions:

- Salish Kootenai College
- Fort Belknap Community College
- Chief Dull Knife Community College
- College of Menominee Nation
- Haskell Indian Nations University
- Sitting Bull College
- Little Big Horn College
- Dine College
- Blackfeet Community College
- Fond du Lac Tribal and Community College
- Northwest Indian College
- United Tribes Technical College
- Lac Courte Oreilles Ojibwa Community College
- Southwest Indian Polytechnic Institute

Lac Courte Oreilles Ojibwa Community College in Hayward Wisconsin is conducting research on aquatic invasive plants and conducting community education to mitigate environmental and water quality impacts. Salish Kootenai is building an invasives network in the Flathead Basin, Montana, headwaters of the Columbia River System.

Lummi Shellfish

Northwest Indian College and multiple partners successfully implement a bacterial TMDL for dairy in the Nooksak River Watershed, Washington leading to protection of an important commercial tribal shellfish industry and water quality standard attainment.

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National Facilitation Project
Livestock and Poultry Environmental Learning Center

"Connecting Experts with Those Advising Producers" is the focus of the LPE Learning Center. The Center broadens access to new information supporting sound environmental decision making in animal agriculture by using innovative delivery methods such as its national web cast seminar series.

Situation:

A national team has established a Livestock and Poultry Environmental Learning Center committed to:

- Implementing a customer driven outreach initiative emphasizing critical and emerging issues.
- Coordinating the assembly of our best science-based information targeting these issues.
- Implementing innovative outreach models for connecting those who create new knowledge with the end users of that knowledge.

Actions:

This project has engaged a "Customer Advisory Team" representing stakeholders to help us:

- Identify priority and emerging issues.
- Connect potential customers to this project.
- Evaluate the Center's impact.

A national project team leads our outreach activities and builds linkages between organizations that have important research (LGU, ARS, USGS, EPA), educational (Extension, US EPA Ag Center), and planning responsibilities (NRCS).

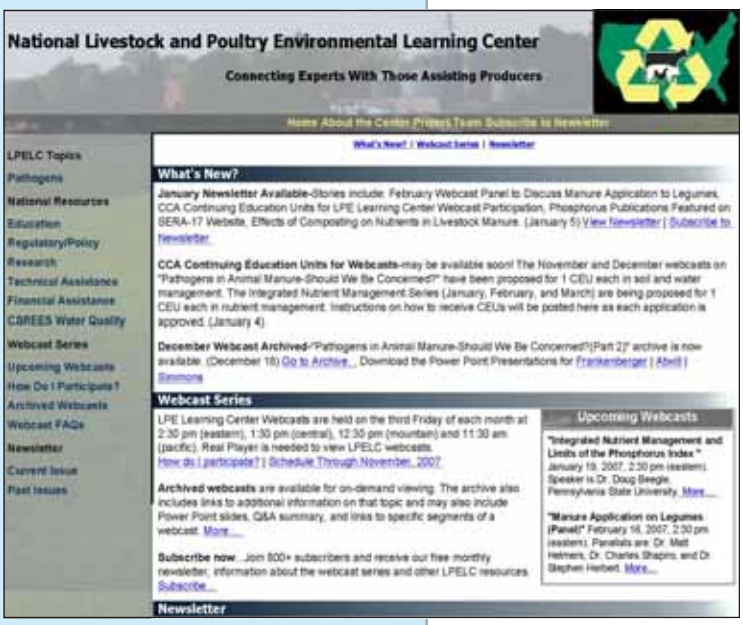
Work groups have formed to address four priority issues including 1) Pathogens and pharmaceuticals in manure, 2) Integrated nutrient management, 3) Value of manure, and 4) Alternative technologies. Each group assembles the "Best of the Best" educational products for web access, three nationally broadcast web cast seminars, and other appropriate resources.

Impacts - Outcomes:

This project is connecting individuals involved in public policy issues, animal production, and delivery of technical services with the nation's best science-based resources responsive to priority environmental issues in animal agriculture.

The project connects with more than 800 subscribers on at least a monthly basis through a Learning Center newsletter.

http://lpe.unl.edu/



Recently completed web cast seminars have summarized proposed changes to federal Confined Animal Feeding Operation regulations, introduced a national curriculum addressing nutrient planning, and summarized the science on pathogens in animal agriculture. Presenters included EPA policy representatives, research scientists from US Geological Survey and USDA ARS, and faculty from Purdue, Iowa State, University of California - Davis, Penn State, and North Carolina. A recent web cast on pathogens reached 240 individuals who advise 30,000 livestock operations annually.

ARS Scientist updates web cast listeners on latest knowledge on pathogens in animal manure.

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On the web at http://lpe.unl.edu/

National Facilitation Project
Great Lakes Radio Consortium's
Environment Report

The *Environment Report* is a news service committed to revealing the relationship between the natural world and the everyday lives of people.

Situation:

A NEETF/Roper Starch Worldwide survey in 1998 found that "most Americans rely on outdated or incorrect information when making decisions about the environment and use common myths to guide their behavior." Despite the negative results, the study also found that as people became aware of environmental issues they took action. By learning about the relationship between water quality and agriculture, citizens will be better able to make informed decisions with respect to the environment. *Environment Report* stories seek to inform listeners about these issues.

Actions:

In the first year of this project, 27 radio stories were produced and distributed to more than 140 public radio stations. These stories were a combination of longer features (4 to 5 minutes), and news spots (~1 minute). Topics covered included CAFO pollution, assessments of nitrogen reduction programs, pesticide exposure, and the dead zone in the Gulf of Mexico. In July of 2006, the GLRC promoted and released a five-part series titled "Pollution in the Heartland" (see photo). Overall, the reporting is intended to strengthen the public debate about the water quality impacts of current and proposed agricultural practices.

Stories are archived on our website (environmentreport.org), and are also available through a podcasting partnership with National Public Radio (NPR). The evaluation portion of this project will use a series of surveys and focus groups to determine whether these reports have an effect on listener behavior. The first focus group sessions were conducted by Market Trends Research, Inc. in November 2006.

Impacts - Outcomes:

Ratings analyses show that these 27 stories made over 5 million listener impressions; visits to environmentreport.org nearly doubled since the summer of 2005; and podcasts were download by approximately 6,000 people per month. Through the use of natural sound, scene-setting, and a variety of voices, *Environment Report* stories draw listeners in, helping them to understand even complex scientific topics. As our past work with the USDA CSREES program has shown, this approach works. A 2004 report that the GLRC commissioned from Market Trends Research found that "the impact of GLRC reporting appears to be substantial." Comparing 2002 to 2004 results, the percentage of listeners who considered themselves well informed about environmental issues in general increased by 14%. Listeners reported greater awareness even of highly specific subjects, such as the effect of nitrogen on water quality. Also, recent focus group studies (Winter '06) suggest the reports are having positive impacts on listener behavior. These results indicate that *Environment Report* stories are making important connections with listeners.

Contact

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Liquid waste being injected into a field in southern Michigan

Promotional card for the GLRC's five-part series

A new tile drain in northeastern Ohio.

On the web at http://environmentreport.org

Contact the CSREES National Water Program

Committee for Shared Leadership Members

The Committee for Shared Leadership for Water Quality is an internal working group created to foster development of the National Water Quality Program. Members include the 10 Regional Coordinators from Regional Projects funded through the Section 406 Integrated Water Quality Grants Program, an 1890 and a 1994 Representative, and the CSREES National Program Leader for Water Quality.

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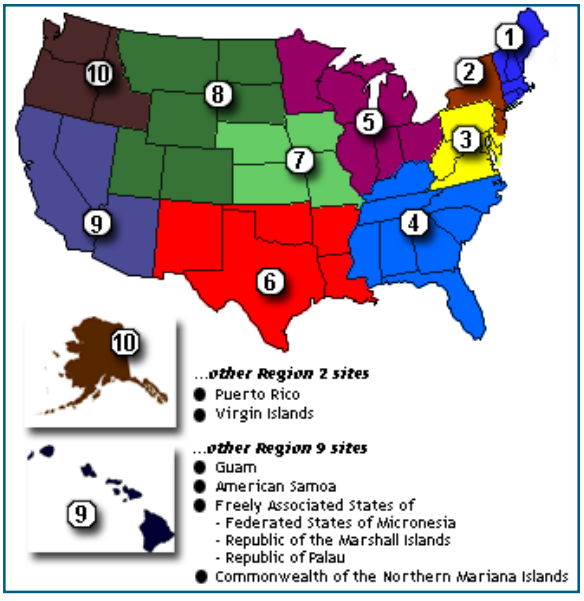

CSREES National Water Conference

The CSREES National Water Program's annual conference held in San Antonio, Texas in February, 2006 enabled water resource professionals engaged in research, extension, and education to share knowledge and resources, identify emerging issues, and to strengthen the network of the CSREES National Water Program.

Over 120 technical presentations and 180 posters addressing key water resource issues were presented to more than 400 participants attending the conference.

Participants at the National Water Conferences include State extension water quality coordinators; university scientists, instructors, and extension educators who focus their efforts on water resource issues; USDA-CSREES staff members who work directly or indirectly with state water quality specialists; EPA staff involved with water resource issues; and others who work with or for public or private institutions involved with water resource management.

Previous conferences have been held in Clearwater, FL;Tucson, AZ; La Jolla, CA; and San Antonio, TX. Proceedings for the 2003 - 2006 conferences are posted to http://www.usawaterquality.org/conferences/.

The next Conference is scheduled for Feb. 4-8, 2008 in Reno, Nevada and will emphasize **Research, Extension and Education for Water Quality and Quantity**. Mark your calendars!

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