National NEMO Network

Volume 5, Issue 1

Winter 2003 Newsletter

Training Sessions Convert NEMOids into Open Space and Impervious Surface Gurus

Thanks to the help of two federal partners, Network members were able to take advantage of two training opportunities this year. The EPA Office of Policy, Economics and Innovation, Division of Development, Community and Environment (aka the Smart Growth Office) sponsored the Open Space Preservation Strategies for Promoting Smarter Growth and Environmental Protection initiative, a nationwide effort announced by EPA Administrator Christie Todd Whitman in January 2002. The Open Space Boot Camp was held in August at the UConn Marine Campus. Attended by 14 NEMO programs in 13 states and accompanied by several local community partners from the programs, the Boot Camp taught both the process of open space planning and methods of developing effective open space educational workshops, with affiliated training in conducting community resource inventories and the use of geospatial information.

EPA's Smart Growth office saw this "Boot Camp" as an antidote to the typical approach of dropping topical experts into local communities for one-day workshops. "By providing training to Network members, we are able to create an open space education infrastructure that will last long after the workshop is over," remarked Lynn Richards, EPA smart growth expert and NEMO devotee. "The Network is a powerful concept because of its ability to disseminate information and technical assistance to the most local levels of government." NEMO projects that participated in the training are now working with local partners and communities to further

Leslie Kane at the ISAT Training at Avery Point, Groton, CT 2002.

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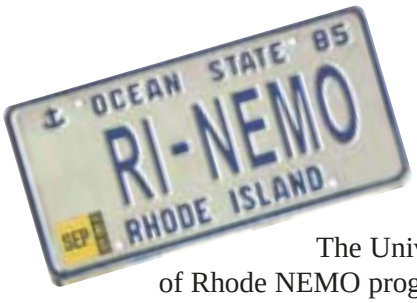
NEMO U3 is Coming May 19-21

The third week of May 2003 will mark the third gathering of the Network. NEMO U3 will be held on the emerald shores of Fishers Island Sound on the University of Connecticut's Marine Campus in Groton, CT. A planning committee consisting of Network members and your hard working Hub coordinators have formulated a productive and exciting agenda that will highlight the progress of the Network. Deadline for registration is April 18! Be sure to mark your calendars and visit the National NEMO Network's website NEMO U3 section for more information. **nemo.uconn.edu/national/nemo_u3**.

Network Progress Report Published

The first ever report on the progress of the National NEMO Network was published in March 2003. The report details the evolution and organization of the Network and highlights a dozen Network projects, focusing on the impacts resulting from NEMO programming in their states. The colorful 40-page booklet was written and edited by the Network Hub and the state NEMO program coordinators. It was expertly designed by Network Communicator Kara Bonsack. If you have not received a copy of the report, they can be ordered from the NEMO website. Thanks to all who contributed to this publication!



Project Spotlight

Rhode Island NEMO Program

The University of Rhode NEMO program is both one of the oldest and also one of the most unconventional NEMO programs—a kind of eccentric elder sister in the NEMO family. Although a fairly recent newcomer to the National Network, this Cooperative Extension program has been providing training, assessment tools, and technical support to local officials in adopting pollution controls since 1993. In this article we describe our approach, how the program has evolved to meet local interests and changing budgets, and then highlight some of the watershed assessment tools used in outreach programs.

"With so many communities now adopting innovative ways to control runoff, better protect aquifers and finally begin real management of onsite systems we want to get word about these successes to all communities" - Lorraine Joubert

Sandwiched in between New York and Boston, Rhode Island is the second most densely populated state in the country, surpassed only by New Jersey. One of our kept secrets is that outside of the urban core, much of the outlying areas are still a mosaic of family farms and turf producers, mill villages settled from the early industrial revolution, forest, salt water beaches and coastal ponds. Not surprising, these attractions within commuting distance to major employment centers mean RI suburbs face tremendous growth pressures. Some coastal communities project full "build-out" within 20 years.

The program started out offering multi-session workshops designed for small groups of communities sharing a common watershed or aquifer recharge areas. Topics covered techniques for maintaining "community character," legal issues, and water resource topics. These were held in partnership with the RI Statewide Planning program, state regulators and consulting professionals donating their time. In each case, GIS was used to develop local case studies of pollution problems, focusing on town-identified water resource priorities. The focus was on identifying pollution sources and discussing specific management options. Later, as funding for municipal education dwindled, the program shifted from training to demonstration, focusing on watershed assessment. Growing awareness that aging and unmaintained septic systems were a serious pollution threat, along with establishment of the URI Onsite Wastewater Training Center, led to use of watershed assessments to identify wastewater management options and a focus on building local capacity for comprehensive wastewater management.

One of the tools developed to support town land use decisions is MANAGE (Method for Assessment, Nutrient loading, And Geographic Evaluation of watersheds and aquifers.)

Dr. Art Gold, Dorothy Q. Kellogg and other scientists in the University of Rhode Island Natural Resources Dept. helped to develop this method, using results of local research on nitrogen leaching to groundwater from different land uses. This is a screening level approach using a collection of watershed indicators—from the traditional NEMO impervious cover analysis to riparian buffer conditions and number of septic systems. MANAGE incorporates a spreadsheet that synthesizes GIS land use and soils data for small study areas (500 - 50,000 acres) to generate watershed statistics and to develop a simple hydrologic budget and nutrient loading as additional indicators. Not a packaged model, but a collection of indicators and mapping techniques, the system is designed to provide a relatively rapid, and low-cost assessment of the most significant pollution threats in a watershed or groundwater recharge area to data direct local management actions.

In partnership with the RI Department of Health, RI NEMO is currently working on source water assessments for all of Rhode Island's water supplies. This includes 17 major suppliers serving 70% of the state's population. These assessments use the MANAGE assessment approach to target areas of high pollution risk (hotspots) to drinking water supplies. The "hotspot" analysis overlays GIS data on high intensity land uses (e.g. agriculture or high density residential) with soils data—particularly water table depth—to determine where runoff from the most intense land uses is easily conducted through the soil and into nearby water bodies. Within a watershed, calculations are also made for specific water quality indicators such as the percentage of watershed imperviousness, high intensity land uses, and nutrient loading to groundwater. The degree and relative difference among these specific indicators provides a snapshot of the current health of the watershed in a language that land use officials and local citizens can easily understand.

In addition, the assessment uses zoning data to envision land use changes and recalculate these same indicators when the watershed is built out. This analysis is particularly eye-opening to local officials as it gives them a glimpse of how their land use patterns may affect their drinking water in the future. Just when the planning board is throwing up their arms in anguish over the potential for future water quality degradation, the nutrient loading spreadsheet can also be used to estimate the change in pollutant inputs resulting from use of alternative management practices. (*See figure on page 4*)

Rhode Island NEMO Program continued on pg 4 . . .

Around the Network

New States Join the Network

The Network continues to grow, stretching ever westward, with new states in Arizona, Colorado, Mississippi and Nevada. The Arizona NEMO Program is led by Deb Young of the University of Arizona Cooperative Extension System and will focus on several issues unique to the arid Southwest. The Colorado program, coined AWARE (Addressing Water And natural Resource Education) Colorado, is coordinated by Loretta Lohman of Colorado State University Cooperative Extension and by Cynthia Peterson of the CO League of Women Voters. In Mississippi, the Department of Environmental Quality is leading the charge under the direction of James MacLellan, an actual professional engineer (don't worry James, we don't hold that against you). Last, but not least, Nevada is gambling on NEMO to help identify and address a number of water related issues, with the award of a Section 319 grant to Susan Donaldson, a water quality education specialist for University of Nevada Cooperative Extension. Congratulations to all and welcome to the Network.

Ohio NEMO Holds Statewide Stormwater Conference

Pushing back technical frontiers, the Ohio NEMO Program held an internet simulcast conference this January entitled, *Workshop on Developing an Effective Stormwater Management Program Using: Best Management Practices, Performance Standards, and Pollution Credit Trading.* The workshop included experts from both the federal and state governments, as well as public sector practitioners. The workshop was co-sponsored by Ohio NEMO's many partnering agencies, including the County Commissioners Association, Ohio Township Association, Ohio Sea Grant, among many others. If you are interested in learning more, click on over to Ohio NEMO's well-stocked website (nemo.osu.edu) and view the workshop in it's entirety on-line, including a segment where coordinator Tim Lawrence is wearing a very nifty tie. Nice work, Tim!

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develop their open space efforts. Look for an update on their progress at NEMO U3.

The second training opportunity, offered in October 2002, focused on the Impervious Surface Analysis Tool (ISAT). Sponsored by UConn's Geospatial Training Program, the National NEMO Network, and NOAA Coastal Services Center, the training was an extensive two day hands-on workshop where participants were able to use this newly developed ArcView extension. Thanks to the technical firepower of the Coastal Services Center and the fundamental research performed by Connecticut NEMO's geospatial partners, ISAT provides a simple tool for both estimating degrees of imperviousness and creating your own coefficients of impervious cover unique to your landscape.

But wait, that's not all! ISAT also allows users to evaluate various “what if” development scenarios to see how a particular development might affect a subwatershed's percentage imperviousness—a key indicator of water quality. Participants in the ISAT training agreed to help develop local impervious surface coefficients that would be made available to the general public. Look for an update on this effort at U3.

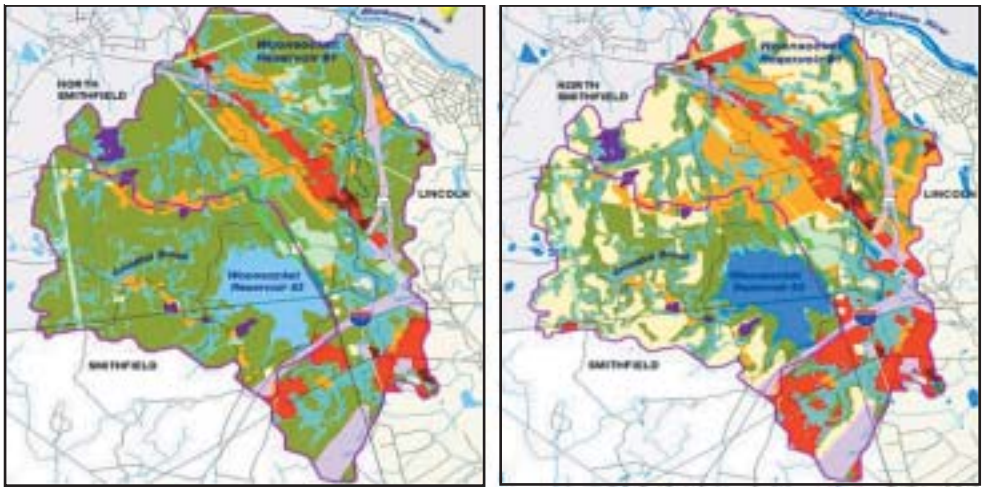
Northland NEMO Hires New Coordinator

Jesse Schomberg has been hired as Minnesota Sea Grant's new NEMO coordinator for the northern Minnesota region. This rock-climbing father of two will work with communities in the Western Lake Superior Basin spreading the NEMO gospel far and wide. Schomberg earned a bachelor's degree at the University of Minnesota Duluth, and went on to earn a master's degree studying aquatic invertebrates at Idaho State University. Jesse has already gone through the traditional NEMO initiatory activities (a painful but important team building exercise), being a participant in last fall's ISAT training. Join us in welcoming Jesse to the Network. *Special thanks to UMN Sea Grant Program for the photo and information on Jesse.*

Jesse Schomberg, the new Northland NEMO coordinator.

Rhode Island NEMO continued from pg 2 . . .

Woonsocket Reservoir Build Out



Current Future

Figure. Woonsocket Reservoir Build Out. This example shows existing threats to one reservoir watershed, with strip commercial and industrial development under current land use. Future development allowed under current zoning would intensify these commercial uses and also convert a relatively undeveloped subwatershed from forest to large lot residential use.

Accomplishments

Local officials receive information and assistance from a variety of sources. Within this support network, RI NEMO training programs, assessments, and follow-up technical support has achieved significant results in statewide water resource management. Some highlights include:

• **Wastewater management** - Rhode Island communities are leaders in establishing comprehensive wastewater management programs. Five communities have established town-wide mandatory inspection and repair programs with towns tracking inspection results. Two communities are phasing out all cesspools townwide within 5-12 years; another is phasing them out in drinking water supply watersheds. Other towns are adopting watershed-based treatment standards for use of advanced onsite wastewater treatment systems in critical areas. Several communities have incorporated assessment results into wastewater management plans.

• **Innovative Stormwater management** - With supporting evidence from assessment results, the University of Rhode Island has just installed a 100-car permeable parking lot to maintain groundwater recharge to its aquifer; another 80 car permeable lot will be built this year.

• **Land use planning** - Assessment maps are being used to earmark parcels for open space protection and land acquisition, to update town plans and review of development projects.

• **Groundwater protection** - Assessment results have been used to update groundwater protection ordinances, expand protection areas from wellheads to larger aquifers, and weigh zone change applications in recharge zones.

• **Training** - Grow Smart Rhode Island is using URI survey results to design a basic curriculum for RI board and commission members in making decisions. RI HEALTH and URI will be updating educational materials and technical support to local officials using results of the Source Water Assessment program.

Building on established partnerships and the wealth of assessment results and demonstration projects, RI NEMO plans to return to basic outreach activities—now better equipped with tools and practical examples. According to Lorraine Joubert, "With so many communities now adopting innovative ways to control runoff, better protect aquifers and finally begin real management of onsite systems we want to get word about these successes to all communities". Seeing innovative programs work in one community is after all, probably the single strongest factor motivating other towns to adopt better pollution controls. Meanwhile, environmental analyst Lenny Bellet, who recently joined URI NEMO is looking forward to sharing resources with the other NEMO partners, "Who knows, URI NEMO might even get around to doing that basic slide show".

Editor's Note: This article was condensed from a much longer and more amusing article penned by the RI NEMO crew, who would want you to know that RI NEMO is part of the URI CE Water Quality Group. Learn about RI NEMO and all the great WQ Group programs by contacting:

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National NEMO Network

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The National NEMO Network Newsletter is published randomly by the National Network Hub and is used as an informational tool between network members.

The National NEMO Network is a group of affiliated programs that educate local land use decision makers about the relationship of land use to natural resource protection. The Network is coordinated by the University of Connecticut Nonpoint Education for Municipal Officials (NEMO) Program, with funding from USDA, EPA and NOAA.

The National NEMO Network is a program of the UConn Center for Land use Education And Research (CLEAR).