

# Connecticut NEMO Newsletter

Nonpoint Education for Municipal Officials  
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## New NEMO Program Focuses on Coastal Habitats

For the past year, NEMO has headed a collaborative effort to create a multi-media educational program that focuses on ways to protect and restore Connecticut's coastal habitats. *Focus on the Coast* includes a one hour educational presentation that describes the land and water resources of Connecticut's Long Island Sound coastline, shows how that coastline has been changing over the last 20 years, and then zeros in on three priority habitat areas: tidal marshes, migratory fish runs and submerged aquatic vegetation. The program presents concise information on the location, ecological value, and threats to each habitat type. Emphasis is placed on the amount and growth of urban land in the adjacent areas and upstream watersheds of coastal habitats. Practical strategies are presented for how towns can protect and restore these areas using a combination of regulatory, conservation, land use planning

and educational approaches.

*Focus on the Coast* partners have expertise in all four of these approaches. The project is a collaboration of the NEMO Program, the Connecticut Sea Grant College Program, The Nature Conservancy Connecticut Chapter and the Connecticut Department of Environmental Protection Office of Long Island Sound Programs.

The goal is for each of the partners to be able to deliver the program, although the primary contact will be the NEMO Office in Haddam. The catalyst for the project was a grant from the NOAA Coastal Services Center in Charleston, SC.

*Focus on the Coast* makes use of some new digital information, including new habitat information provided by

CT DEP and new land cover change data provided by the UConn Center for Land use Education And Research (see article on page 4). The presentation has been



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## From NEMO Central

Our second newsletter finds the NEMO Program in transition. As most readers know, CT NEMO Coordinator Laurie Giannotti left the University in April to become the Executive Director of the Pomperaug River Watershed Coalition.

Laurie was the first and only Coordinator the program has had, and was with us for six years. During that time, she initiated a wide variety of innovative projects, including the Reducing Runoff website and the Sustainable Landscape Demonstration Project that is featured in this issue. However, her greatest achievement was her stalwart work on the Municipal Initiative (see our last issue), which she created with Jim Gibbons and ran for the three years it has been in effect.

All of us here at NEMO Central would like to thank Laurie for the great job that she did, and the great friend that she was, and is.

Changes to the team notwithstanding, NEMO is alive and well. NEMO responsibilities during this interim period are being handled by the team of Jim Gibbons, Chet Arnold and National NEMO Network Coordinator John Rozum. We're looking forward to working on a number of new educational programs over the summer, and kicking off yet another round of the Municipal Initiative in the fall. And, we're looking forward to welcoming a new CT Coordinator to the team this summer, so you can expect an introduction in our next issue. ☀

Chester Arnold

Program Co-Director, NEMO

. . . continued on pg 4





# Spotlight On . . .



## Haddam The Sustainable Landscape Demonstration Project

The Middlesex County Extension Center in Haddam, Connecticut is the home of many Cooperative Extension efforts. Three of these, the Master Gardener Program, the Forest Stewardship Program and the NEMO Program, are collaborating with colleagues in other departments at the UConn College of Agriculture and Natural Resources to transform the Extension Center grounds into an active Sustainable Landscape Demonstration Site.

The idea of the Demonstration Site is to provide on-the-ground examples of the types of land and water management techniques recommended by these programs. The Forest Stewardship Program is taking the lead on woodlot management demonstrations that will address issues like invasive species, use of native shrubs and encouraging wildlife through creation of habitat. The Master Gardener Program is involved in the planting and maintenance of turf plots, landscaped areas and some of the vegetated stormwater practices. The NEMO Program is taking the lead on demonstrations of stormwater management through site design, showing ways that runoff can be reduced and directed into the ground.

The overall site plan was developed in collaboration with the UConn Landscape Architecture Program, a branch of the Plant Sciences Department. During the Fall 2000 and Spring 2001 semesters, students working under professors Mark Westa and Kristen Schwab presented a number of design concepts that resulted in a master plan

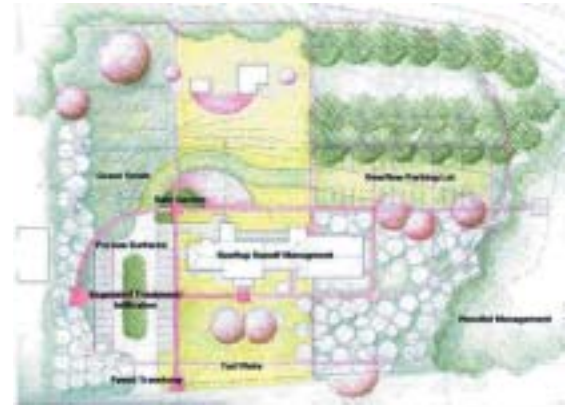
for the Demonstration Site (*right*).

While no funding has been found to allow the project to be built all at once, various portions of the project are proceeding as resources become available. The overall end result will be a first-rate educational demonstration facility and a greener Center that reduces the environmental impacts of our Extension facility.

**Permeable Parking Stalls:** Impervious parking lots are a major generator of polluted runoff, particularly in commercial and industrial areas. Working in partnership with Weston Solutions, Inc., a leading environmental firm specializing in redevelopment, the NEMO Program replaced two asphalt parking stalls with permeable

alternative surfaces that promote infiltration of stormwater. After carefully preparing a subbase that included processed stone, filter fabric and sand, concrete grid pavers with an open lattice work structure were put into place. These “gridders” were then finished in two different fashions: one with gravel, and one with topsoil and grass seed.

**Green Roof:** Another collaboration with Weston Solutions was with their GreenGrid™ division, which has developed an innovative approach to the age-old technique of green roofing. Green roofs can help to reduce stormwater runoff, promote better air quality and reduce both energy use and thermal “heat island” effects in urban areas. Green roof technology is popular in Europe and is gaining momentum in the United States, but most green roofs require lots of heavy soil and subsequent structural



*The Haddam Demonstration Site Project master plan.*

changes to the building. Greengrid units, made of lightweight 4' x 2' plastic trays with specially designed growing media and fast-growing hardy plants, can be installed quickly and easily in a variety of situations, including on small buildings and on roofs with up to 30% slope. Our very modest Haddam demonstration, to date, includes a 4-unit display tray on the grounds, and a small roof unit over one of our rear exits.

**Rain Garden:** Roof runoff control is also the aim of the rain garden demonstration, a collaboration with the Department of Natural Resources Management and Engineering (NRME). NRME's Dr. Jack Clausen worked with the NEMO Program to create a vegetated rain garden to receive runoff from the back half of the Center's large conference room roof. The rain garden is a research project that is monitoring and analyzing both the quantity and quality of roof runoff as it enters and flows through the garden.

**Rain Barrels:** Another long-established technique is being used for other parts of the Center roof. Rain barrels, connected to the roof downspouts, capture the relatively clean roof runoff and retain it for

*(top to bottom) Permeable parking stalls; Green roof installations; rain garden installation.*





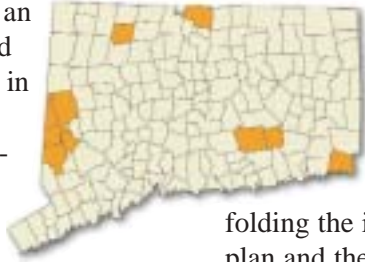
# New & Noteworthy

## Updates From our "Mini" Towns:

**Candlewood Lake Authority** (*Class of 2002*) - Interested in maintaining or improving water quality in Connecticut's largest lake, the Candlewood Lake Authority (CLA) drafted an Action Plan that reviewed the plans and regulations in their five member towns, and made specific recommendations on how to protect the lake. New Fairfield stepped to the plate by recently approving an update to their Plan of Conservation and Development (C&D) with many of the recommendations from the CLA Action Plan. This update led to a specific recommendation to develop an overlay zone for the lake watershed that incorporates impervious surface limits and requirements for stormwater management plans. Other towns in the watershed are now considering the CLA recommendations. An effort by students at a local private high school used the Action Plan to evaluate the abilities of local communities to protect the lake. This effort resulted in the DEP awarding the students and CLA the Green Circle Award.

**East Haddam** (*Class of 2003*) - One of the fastest growing towns in Middlesex County, East Haddam instituted a subdivision moratorium in order to update subdivision regulations. During this period, the commissions and the public attended a number of workshops with topics ranging from reducing the impacts of impervious surface, to open space planning, to determining lot size through net buildable area. By this fall, the Planning and Zoning Commission will have revamped their conservation subdivision regulations, road standards and stormwater regulations.

**Suffield** (*Class of 2002*) - Suffield is currently updating their zoning regulations and road standards to incorporate NPS management strategies consistent with Phase II recommendations. The town is



also working with a UConn GIS specialist to identify agricultural areas at risk in conjunction with the Capitol Region's COGs anti-sprawl initiative.

**Salem** (*Class of 2001*) - Salem's first task was to conduct a resource inventory in town, which was completed in 2002. The town is folding the inventory into an open space plan and the Plan of C&D and is considering changes to their zoning regulations to allow alternative stormwater practices as recommended by the soon to be released Connecticut Stormwater Quality Manual.

**Stonington** (*Class of 2003*) - With the Reducing Impervious Surface workshop under their belts, Stonington is working with the consultant, Planimetrics, to update the Plan of C&D to incorporate many of the espoused principles. The town is also moving to meet the requirements of the Phase II program, working with NEMO to develop an outreach CD-ROM targeted at citizens and staff.

**Winchester** (*Class of 2003*) - With a new planner on board, the town is now moving forward with a schedule of educational workshops to accompany an inventory of the community's historic, cultural and natural resources. This inventory will then be folded into the Plan of C&D, which is to be updated beginning this year. 🌟

## Introducing... Emily Wilson

Emily Wilson is the remote sensing and geographic information systems specialist for the Connecticut NEMO Program. Emily was originally hired back in 1999 by NEMO's research sister program at UConn, the *Regional Earth Science Applications Center*. There, she helped pioneer new techniques at looking at land cover data, including methods to characterize urban growth and forest fragmentation—both of which we are eagerly waiting to apply to our new land cover change information (*see page 4*). Emily jumped the fence over to the NEMO education side last August, and in her first year has served as an invaluable link



Emily and Abigail Jean.

between Connecticut NEMO and Sandy Prisloe's Geospatial Technology Extension Program (to be profiled next issue). At the moment, Emily is working on the interactive mapping website for *Focus on the Coast* (*page 1*), as well as helping Sandy with his GIS training courses and pitching in on various research and technology initiatives. Emily is also available to give the *GIS and Your Town* presentation, which is an ideal primer on GIS and RS technology for towns considering getting into the digital game.

Emily has a BA in Environmental Studies and Botany from Connecticut College and an MS in Forestry and Remote Sensing from the University of Maine. She lives in East Hampton with her husband Josh, an Environmental Analyst, and her brand new baby Abigail Jean. 🌟

## Check This Out!

- Have you checked out the UConn Geospatial Technology Program website yet? Data, research updates, training course schedules and more can be found at: [clear.uconn.edu/geospatial/](http://clear.uconn.edu/geospatial/).
- Don't forget to visit the NEMO website @ [nemo.uconn.edu](http://nemo.uconn.edu).
- **Book Reading, August 6 @ 7:00 PM**, Presented at R. J. Julia Bookseller's in Madison - Deborah Cramer will be reading from *Great Waters*, her lyrical natural history of the sea. *Great Waters* explores how earth's life-giving oceans nourish and sustain us, and how humans are altering the sea's finely-tuned balances.

# Resources

## New CLEAR Land Cover Information Will Show Connecticut's Changing Landscape

Lots of folks, including us, talk about the rapidly urbanizing Connecticut landscape and the subsequent loss of both farmland and forest. But how much are we really urbanizing—and where, how fast and in what way? Answers to these questions will be forthcoming late this summer, when the new UConn *Center for Land use Education And Research* (CLEAR) unveils a time series of land cover information from four dates spanning the last 17 years: 1985, 1990, 1995 and 2002.

The information comes from the 30 meter pixel Landsat-derived land cover that NEMO partners have been familiar with for some time. The great trick, however, is in making those four data layers truly comparable, avoiding the *apples and oranges* problem of comparing data collected from different satellites and sensors. Remote sensing specialist James Hurd, working under CLEAR Director Dan Civco, has been chained to his computer for most of the last 10 months to ensure that we're talking *all apples*. Thus, we soon should have information on how your



*Draft map from Focus on the Coast website (see page 1), showing growth in urban land in Old Saybrook. Gray depicts areas developed before 1985. Red, orange and yellow depict urban growth from 1985-1990, 1990-1995 and 1995-2002, respectfully.*

town, region or watershed has changed since 1985. We hope to make this information available to the public in various forms by the fall of 2003, delivered both through a website and incorporated into NEMO (and other CLEAR) educational programs.

In addition to being valuable in its own

right, this information will provide the fuel to run several innovative landscape change analysis models developed by UConn's Regional Earth Science Applications Center, another CLEAR project. These models break down the landscape by looking at roving windows of land cover pixels, capturing and analyzing the patterns of farmland loss, forest fragmentation and urban growth. So, in addition to the answers to the *where?*, *when?* and *how much?* questions provided by the land cover change data, the models will try to answer the *in what way?* question. Being able to quantify things like the degree of forest fragmentation and the type of urban growth (*are we infilling? sprawling?*) will give us more insight as to the impacts of our changing landscape on natural resources. Finally, these data will also be used as the basis for a related CLEAR project being funded by the Long Island Sound Study, which will look at the change in impervious cover in the region from 1985 to the present. Stay tuned! ☀

## New NEMO Program Focuses on Coastal Habitats continued from pg 1 . . .

through one field test in Old Saybrook, the feedback from which resulted in significant improvements (thanks, Saybrook NEMO Task Force). The new and improved version will be available to towns within the coastal zone management area by the end of the summer. As to the “multi-media” aspect: the presentation will be accompanied by a short series of fact sheets, and complemented by a website that will take visitors through a coastal resource inventory tutorial, provide interactive mapping to access the latest and best available habitat maps and link to additional publications and resources. ☀



*A rain barrel in one of the Master Gardener Program's gardens.*

## Haddam: The Sustainable Landscape Demonstration Project continued from pg 2 . . .

use for the Master Gardeners and our Center maintainer. The barrel (*photo*) was placed in a border garden where previously there were no water spigots within a comfortable distance.

Future efforts will focus on the biggest elements of the project: creating a large bioretention area in the middle of the main parking lot, and installing a “green paving” grass surface for the planned overflow parking lot. Also, the Forest Stewardship portion of the project will be started. So, come to Haddam and check out our progress, or visit us on the web at: [nemo.uconn.edu/case\\_studies/demosite.htm](http://nemo.uconn.edu/case_studies/demosite.htm). ☀

## Connecticut NEMO Newsletter

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