

# NEMO PROJECT FACT SHEET #1

## PROJECT BRIEF

### What is the NEMO Project?

NEMO stands for "Nonpoint Education for Municipal Officials," a three-year project of the University of Connecticut Cooperative Extension System, in cooperation with the Connecticut Sea Grant College Program and the University's Department of Natural Resources Management and Engineering. As the full name implies, NEMO is a project focused on helping municipal decision makers to understand nonpoint source water pollution, or polluted runoff (see fact sheet #2).

NEMO is funded by the Extension Service (ES) of the U.S. Department of Agriculture, and is the first of a number of ES projects around the nation directed at helping to protect the water quality of estuaries of national importance. Ongoing studies by the Environmental Protection Agency have shown that polluted runoff is a major factor in the degradation of these critical water resources. The diffuse, incremental nature of this type of pollution dictates that education—not regulation and enforcement—will be the key to combating it.

### The Need for NEMO

The NEMO Project is based on the conviction that reduction of polluted runoff can only be achieved through informed land use decisions at the local level.

While this has always been the case, the recent proliferation of new federal and state "nonpoint" laws and programs has underscored the growing need for local officials to be knowledgeable about the causes, effects, and management of polluted runoff. The sheer number of local officials involved, plus their continual turnover, present a challenge to those interested in bringing education into the public policy process. NEMO is a pilot project, working with three towns along the Connecticut shore, aimed at devising a useful and workable way to assist municipalities in dealing with polluted runoff.

### NEMO'S GOAL

*To develop a process for educating professional and volunteer municipal officials about the impacts of land use on water quality and about the options available for managing those impacts.*

### Project Description

NEMO makes use of geographic information system (GIS) technology to help illustrate the connection between land use and water quality (see box). A series of GIS images based on satellite-derived land cover/land use data is the heart of the NEMO program, which also includes an informational videotape and a series of fact sheets.

The core presentation of NEMO can be roughly divided into three parts. First, GIS images of topogra-

*Linking*

*Land Use to*

*Water Quality*



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phy and drainage systems are used to emphasize the water cycle, the watershed concept and the need for watershed management. Second, the land cover/land use data is interspersed with ground and aerial photographs to show municipal officials the current land use patterns in their town and the common polluted runoff problems associated with each major type of land use.

Finally, existing land use in critical watersheds is compared with "build-out" scenarios based on the town's zoning regulations. The emphasis here is on potential increases in the amount of impervious surface, which has been demonstrated in the literature to be a key determinant of receiving stream water quality. This relationship can be used as a simple and unifying principle which town officials can reference in the course of their day-to-day land use decisions.

### **A Collaborative Effort**

The NEMO team itself is already a successful collaborative effort between three different parts of the university. In addition, the project is working closely with a number of other agencies and organizations, including New York Sea Grant, the Soil Conservation Service, federal and state water quality regulators, regional planning agencies, and the target towns themselves. Finally, the NEMO team is working with people in Rhode Island and New York to share information and ideas on similar projects proposed for those regions.

### **WHAT IS GIS?**

*GIS stands for "geographic information system", which is, very generally speaking, computerized mapping. A GIS is a computer system capable of assembling, storing, manipulating and displaying any data that is referenced to a location. This data can be anything from typical map data (locations of highways or houses) to natural resource data (topography, soil types) to demographic data (population density).*

*GIS allows geographic data of this type to be displayed, compared and analyzed in ways that would be prohibitively time consuming, or even impossible, using conventional maps and overlays. Because of this, GIS is rapidly becoming an invaluable management and planning tool in all types of professions worldwide. In the case of NEMO, GIS images are used to show the relationship of a town's land use to its water quality in a dramatic and understandable way.*



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