



## ***SC NEMO Project Brief***

***SC NEMO Fact Sheet #1***

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### **WHAT IS THE NEMO PROJECT?**

NEMO stands for *Nonpoint Education for Municipal Officials*, a three year project of the SC Sea Grant Extension Program, the Clemson University Extension Service (CES), the University of South Carolina Institute for Public Service and Policy Research - Environmental Research and Service (IPSPR-ERS) and the University of South Carolina Earth Science and Resources Institute (ESRI). As the full name implies, NEMO is a project focused on helping local decision makers understand nonpoint source water pollution, or polluted runoff (see SC NEMO Fact Sheet #2).

The South Carolina NEMO project is being funded through the US EPA and SC Department of Health and Environmental Control's Section 319 Fund. The original NEMO program in Connecticut was the first of a number of extension service projects around the country directed at helping 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, and their relatively high turnover, present a challenge to those interested in bringing education about these issues into the public policy process. Currently, the South Carolina NEMO project is working in four watersheds throughout the state, with the objective of devising a useful and workable way to assist municipalities in dealing with polluted runoff. Based on experience from the pilot project in the Waccamaw region, the NEMO Project has expanded to include additional watersheds in South Carolina.

### **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. A series of GIS images based on satellite-derived land cover/land use data is the heart of the NEMO program. A series of fact sheets about the issues accompanies the presentation.

The core presentation of NEMO can be roughly divided into three parts. First, GIS images of topography 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 local officials the current

land use patterns in their region 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 zoning regulations. The emphasis here is on potential increases in the amount of impervious surface, which have been demonstrated in scientific studies to be a key determinant of receiving stream water quality (see SC NEMO Fact Sheet # 3). 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 project is working closely with a number of other agencies and organizations, including Clemson Extension Service, CEP and ESRI, SC Department of Health and Environmental Control, SC Sea Grant Consortium, state water quality regulators, and local governments within the target area. Finally, the NEMO team is working with people at the University of Connecticut Cooperative Extension System who originated the NEMO concept. The Connecticut program has been instrumental in the organization and delivery of all aspects of the South Carolina effort.

To learn more, contact:

April Turner  
SC Sea Grant Extension Program  
287 Meeting Street  
Charleston, SC 29401  
Phone: (843) 727-2078  
Fax: (843) 727-2080  
Email: [april.turner@scseagrant.org](mailto:april.turner@scseagrant.org)

Written by:  
Chester Arnold, University of Connecticut Cooperative Extension Service

Edited for the South Carolina NEMO Project and reissued with permission September 2000.

Variations of the NEMO program are being implemented in states across the country. In every instance, the program is a collaborative effort utilizing state, local and private sector resources.

### **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 resources 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 when 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 land use to water quality in a dramatic and understandable way.