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National Exposure Research Laboratory (NERL)

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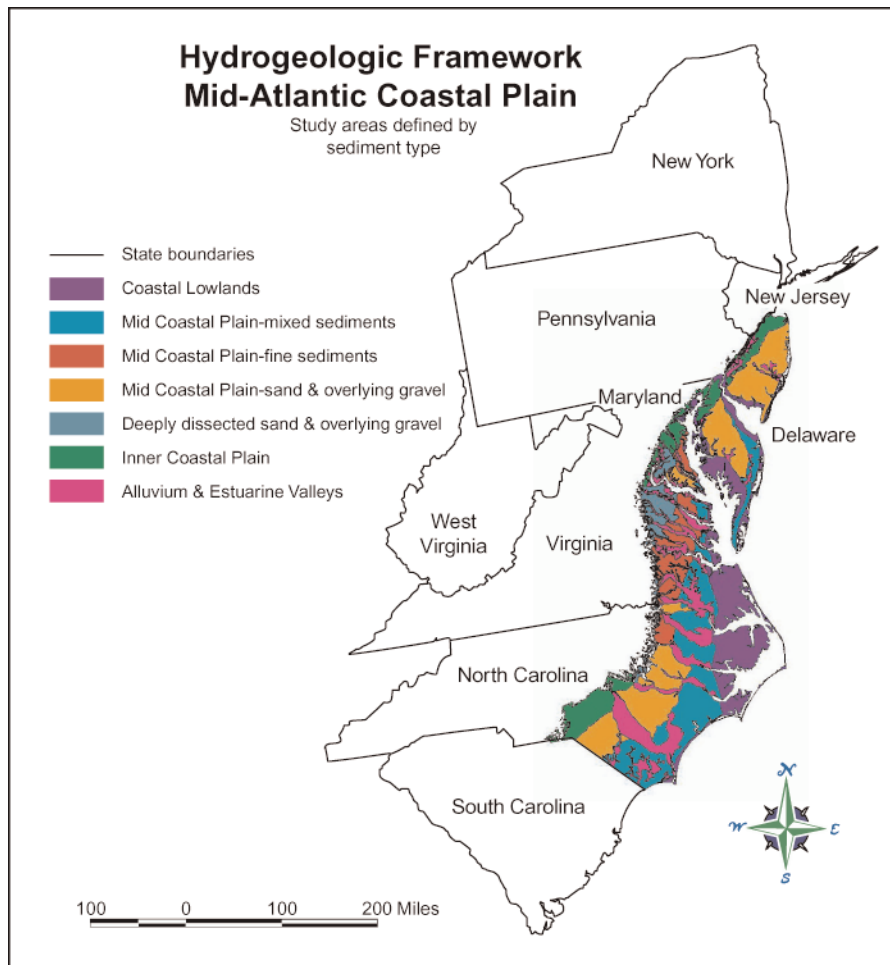
USEPA Region 4

Landscapes Approach: A Cost Effective Look at the Environment

There is a growing interest and need for factual information about environmental conditions at local, state and national levels. Until now, producing this information has been expensive and often beyond the price range of those who could benefit most. The Environmental Protection Agency, in conjunction with the United States Geological Survey, is testing a theory known as the Landscapes Approach, which combines ground level monitoring information with data from satellites along with the expertise of ecologists, hydrologists and geographers. This research project's primary goal is to estimate how pesticides and other toxins affect streams, lakes and rivers. The surrounding land is also studied as it is linked to the water condition through water runoff and activities such as the spraying of crops.

Landscape Indicators for Pesticides Study

This research project is underway in the Mid-Atlantic Coastal Plain (see figure). The study sites are the fresh-water streams and their watersheds, or the surrounding area from which water flows to the streams. Approximately 200 watersheds have been chosen within the Coastal Plain to provide a range of conditions in "developed" versus "undeveloped" areas. When the data are analyzed, a model will be developed for assessment of the Mid-Atlantic Coastal Plain. This study is the first in a proposed 10-year national research program designed to create several models in various locations nationwide that will provide information on how streams are affected by pesticides, nutrients and other chemicals.



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Landscape Indicators for Pesticides Study in Mid-Atlantic Coastal Streams

Benefits

- Tests a potentially inexpensive approach to estimate a stream's vulnerability to pesticides and toxic chemicals
- May provide early warning of dangerous levels of toxins

Useful Publications

- A National Assessment of Landscape Change and Impacts to Aquatic Resources, a 10-year Research Strategy for the Landscape Sciences Program, by Jones and others, 2000. U.S. Environmental Protection Agency, EPA/600/R-00/001
- Testing Landscape Indicators for Stream Vulnerability to Pesticides and Nutrients: Landscape Indicators for Pesticides Study for Mid-Atlantic Coastal Streams (LIPS-MACS), by Pitchford and others, 2000. U.S. Environmental Protection Agency. Check website below for availability
- Ground Water and Surface Water, A Single Resource, by Winter and others, 1999. U.S. Geological Survey Circular 1139
- Pesticides in Surface Water of the Mid-Atlantic Region, by Ferrari and others, 1997. U.S. Geological Survey, WRIR 97-4280
- Nitrate and Selected Pesticides in Ground Water of the Mid-Atlantic Region, by Ator and Ferrari, 1997. U.S. Geological Survey, WRIR 97-4139

Milestones

- Field data collection completed May 2000
- Data analysis now in progress
- Results expected in 2001 and 2002 (check website below for status and availability)

Participants

- U.S. Environmental Protection Agency, Office of Research and Development, National Exposure Research Laboratory, ESD, Las Vegas
- U.S. Geological Survey, National Water Quality Assessment Program

For More Information

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For this effort and other NERL science projects, visit our website at:

<http://www.epa.gov/nerlesd1/land-sci/home2.htm>

Click on *Landscape Indicator for Pesticides Study for Mid-Atlantic Coastal Streams*