United States Environmental Protection Agency

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EPA'S TARGETED WATERSHED GRANTS 2005 ANNUAL REPORT

December 2005

Upper Sangamon River

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WHY IS THIS WATERSHED SPECIAL?

The Upper Sangamon River watershed, which lies in central Illinois, is part of the Upper Mississippi River Basin. Lake Decatur, formed in 1922 to provide water for domestic use and processing of agricultural products, is a prominent feature. The portion of the watershed above the lake covers 925 square miles in seven counties, approximately 87 percent of which is in crop production. Decatur, population 82,000, is the largest city in the watershed.

ENVIRONMENTAL CHALLENGES

The Upper Sangamon River watershed has water quality problems typical of agricultural watersheds in the upper Midwest. Numerous problems affect the environment and the people of the area.

- Erosion and sedimentation from cropland and stream banks have been concerns since Lake Decatur's creation.
- Tile drainage, which is used extensively in the watershed, provides agricultural benefits but also contributes to erosive forces and nutrient losses.
- Peak nitrate concentrations in Lake Decatur have exceeded the 10 mg/l drinking water standard most years since 1980. Monitoring by the Illinois State Water Survey in the mid 1990s found the average annual nitrate yield to Lake Decatur to be 23 lbs/acre.
- Scientists suspect that nutrient loads from this watershed and other agricultural watersheds exacerbate hypoxia (low dissolved oxygen) in the Gulf of Mexico.
- The primary objectives of ongoing soil and water conservation efforts are to reduce erosion, sedimentation, and nutrient losses to surface waters without adversely affecting the agricultural economy of the region.

RESTORATION ACTIVITIES

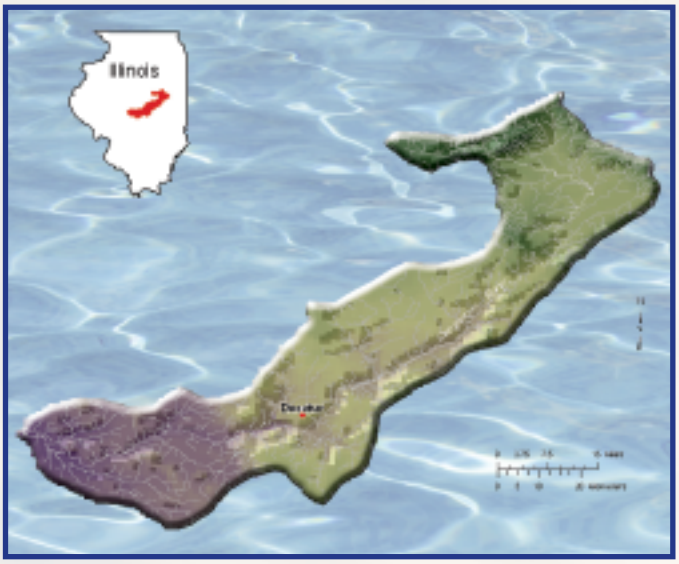
EPA Targeted Watersheds Grant funds will go towards a coordinated set of projects to improve water quality locally, regionally, and in the Gulf of Mexico by enhancing nutrient management for crop production and reducing loss of nutrients.

- One project will use GIS-based software and precision agriculture technology in on-farm experiments to optimize nitrogen management. Risk management instruments to protect farmers against income losses from reduced application rates will be demonstrated and refined.
- A second study will demonstrate drainage water management and subsurface bioreactors to reduce movement of nitrates through drainage tiles to surface waters. Cost-effectiveness will be evaluated, allowing for this approach to be scored for point and nonpoint source trading.
- The third study will address economic and environmental benefits from soil testing and variable rate technology to improve phosphorus management. Economic and environmental results will be measured. Stakeholders will evaluate projects, disseminate findings, and identify added strategies to improve nutrient management and reduce losses.

A STRONG PARTNERSHIP FOR CHANGE

Many watershed management programs for the Upper Sangamon have already been implemented by various groups. EPA Targeted Watersheds Grant funds will support the continued cooperation under the lead of the Agricultural Watershed Institute. Key participants and supporters include:

- University of Illinois Departments of Crop Sciences, Agricultural and Consumer Economics, and Agricultural and Biological Engineering
- County Soil and Water Conservation Districts (SWCD)
- American Farmland Trust's Agricultural Conservation Innovation Center
- Illinois State Water Survey
- USDA's Natural Resources Conservation Service
- Individual farmer-cooperators
- Technical service providers in the fertilizer industry



Macon County SWCD watershed tours educate urban and rural residents about conservation practices.

Illinois State Water Survey personnel monitor stream flow and water quality in the Upper Sangamon Watershed.

"The largest component of this grant is trying to improve the efficiency of nitrogen fertilizer management. We'll be working with University of Illinois researchers, Conservation Districts, farmers, and fertilizer dealers to test nutrient management measures and to use information technology. We hope to not only improve farm income, but improve water quality as well."

– Steve John, Acting Executive Director, Agricultural Watershed Institute