Evaluating the Effects of Conservation Practices: Watershed-Scale Research and Monitoring

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Abstract

The U.S. Department of Agriculture (USDA) has an extensive history of support for conservation and agricultural management practices on the Nation's croplands, rangelands, and forest lands. This support has come in the form of basic and applied research, technical and financial assistance, educational programs, and information gathering and dissemination through the Department's many agencies. While there is an extensive body of literature demonstrating the effectiveness of conservation and agricultural management practices at the plot and field scale, very little information exists to demonstrate how these effects are manifested at the watershed scale. USDA is offering a competitive grants program for evaluating the effectiveness of conservation and agricultural management practices at the watershed scale. In particular, the program attempts to address how the spatial distribution and temporal implementation of conservation and management practices affect water quality within intermediate-sized watersheds. Given the potential for long lag times between the implementation of practices and their manifestation as water quality improvements, the program will focus on capturing and expanding upon the value of existing monitoring programs. We are particularly interested in determining how existing monitoring data can be used to unravel the complex interactions among conservation practices implemented over time and space within a given watershed. Related to this effort is a need to understand how to design an effective monitoring strategy to capture the effects of conservation and agricultural management practices implemented within a watershed.

The success of this program hinges upon the ability of investigators to assemble existing monitoring data, evaluate gaps in monitoring data and identify how interactions among practices impact water quality. We expect to fund four or five different watershed projects (each project will last three years) in each of the next three years. At the conclusion of the final set of projects, we anticipate conducting a summary evaluation of the measurable effects of conservation and agricultural management practices on water quality.