Using Social Indicators to Improve Adoption of Land Management Practices to Protect Water Quality in Four Midwestern Watersheds

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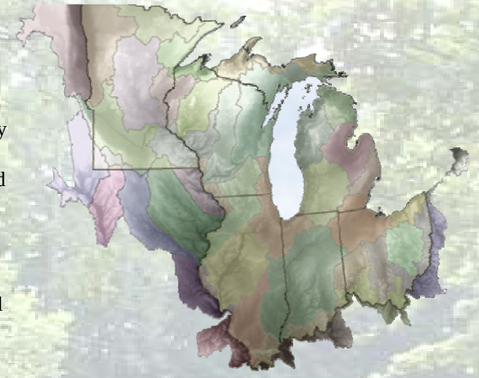
Background

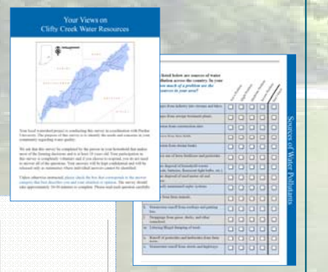
Nonpoint source (NPS) pollution from agriculture is the primary source of water quality impairment in the United States. Because most of the management practices for reducing agricultural NPS pollution are not required by law, addressing polluted runoff in rural agricultural watersheds requires farmers to voluntarily adopt best management practices that may be perceived as directly reducing farm productivity and profitability. When they have a better understanding of the factors that influence farmer decisions to adopt or reject conservation practices, water resource managers can develop more effective education and outreach programs to promote farmer adoption of land conservation practices. In order to provide water resource managers with the tools they need to better understand the social factors that influence farmer behaviors, a research, teaching, and outreach team was convened by the Great Lakes Regional Water Program and USEPA Region 5 to develop a social indicators framework. The team has worked closely with regional, state, and local stakeholders to develop this framework. A grant from USDA-CSREES will allow us to test the social indicator framework in four Midwestern watersheds.



Introduction

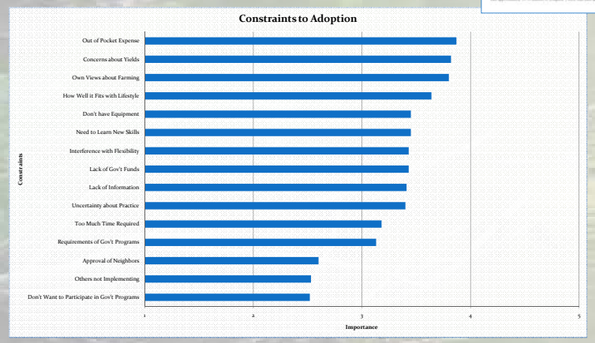
Watershed groups, coordinators, and research teams often spend a great deal of time collecting and analyzing information about environmental conditions such as soil type, topography, hydrology, and land use in their watersheds. However, relatively little time is spent collecting and analyzing information about the social conditions in their watershed. Many watershed management efforts require changes in the behavior of individuals that affect environmental conditions that, in turn, impact water quality. Social indicators can help watershed groups better understand and address social conditions, such as the knowledge, attitudes, capacity, and behaviors of those individuals who effect water quality in the watershed.

Preliminary Results from Clifty Creek



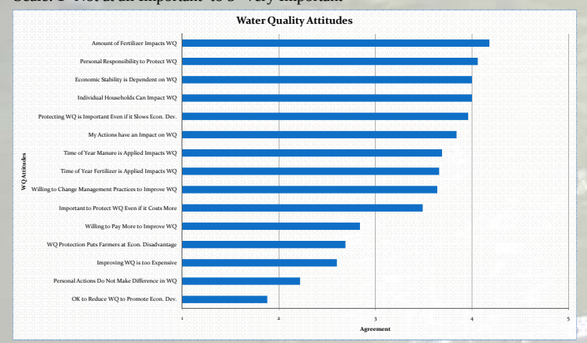
Indicator- General Water Quality Attitudes

Question: When you make decisions about new management practices for your farm operation, how important is each of the following?
Scale : 1= Strongly Disagree to 5=Strongly Agree



Indicator-Constraints to Behavior Change

Question: When you make decisions about new management practices for your farm operation, how important is each of the following?
Scale: 1=Not at all Important to 5=Very Important



Project Description

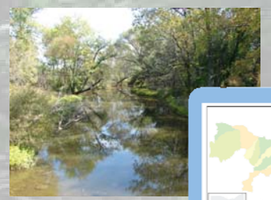
This three-year study will work with local watershed managers to design interventions (education, outreach, and incentive programs) based on an in-depth understanding of target audiences and social context in four watersheds in the midwestern United States. Throughout the study, we will work with local partners and stakeholders to build capacity and knowledge of social factors that lead to behavior change (i.e., adoption of best management practices). The project timeline includes the following:

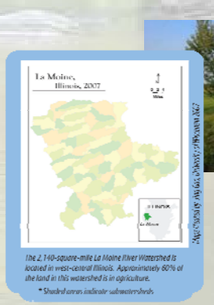
Year 1: We will use the recently developed social indicator framework (*see Genskow et al. poster)* to determine factors that correlate with measurable behavior change of farmers and land managers in project watersheds. We will use mailed surveys to collect this data.

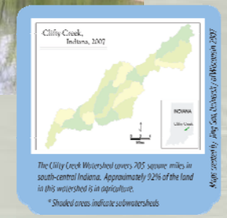
Year 2: Along with local watershed planning and implementation groups, we will use this knowledge to develop interventions that promote behavior change in environmentally critical areas. These tools will be selected based upon our understanding of what motivates and constrains land managers to adopt management practices. Using a paired subwatershed approach in each of the four watersheds, we will apply refined interventions in one subwatershed with the other serving as the control.

Year 3: We will analyze the effectiveness of indicators and interventions and build this knowledge into extension publications directed at stakeholders in the watersheds, an educational curriculum for undergraduate and graduate courses on watershed management, trainings for practitioners at national water conferences, and peer-reviewed journal articles.

Our Study Sites







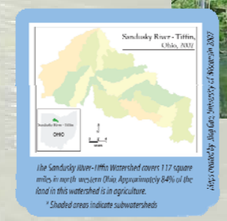


Photo credits: Clifty Creek – Josh Richardson; Fulton Confluence – Ed Miller; The LaMoine River – The LaMoine River Ecosystem Partnership; The Sandusky River – The Sandusky River Watershed Coalition;

Anticipated Project Impacts

Results of this project will enhance our understanding of the complex social dynamics that lead to adoption and rejection of conservation practices by farmers and farm managers. This project will also provide information to help watershed managers select social interventions to complement environmental interventions in watersheds. Finally, testing the social indicator framework will ensure that it provides the information necessary for selecting watershed interventions and can be easily used by local watershed managers.

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