

# Using Social Indicators to Reduce Nonpoint Source Pollution

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Nonpoint source (NPS) pollution originates from the actions of individual decision-makers at diffuse locations across a landscape. Current NPS control and reduction projects encourage individuals to adopt various management practices that can be expected to reduce and prevent NPS. Those efforts are largely voluntary and rely on persuasion, technical and financial assistance, and capacity building. Because there is a time-lag between improvements on the land and their potential impacts on water quality, water quality measures don't necessarily reflect accomplishments of NPS projects that are likely to have a payoff in improved water quality in the future. Thus, it is difficult for individual projects, state-level programs, and multi-state NPS initiatives to document progress toward the goals of improved and protected water quality.

For practical reasons, reporting and evaluation for NPS efforts emphasize outputs such as materials developed, meetings conducted, funds expended, practices installed, modeled loads reduced, and so on. NPS projects generally do not assess whether their efforts have addressed the factors most likely to influence individual decisions for adopting and maintaining appropriate management practices. Nor do they focus on "critical" geographic areas that have higher potential for contributing to NPS problems.

In response to this situation, a team of university researchers and agency staff across the multi-state Great Lakes Region (USEPA Region 5) has developed a system for using "social indicators" for NPS project management. Applied to NPS projects, social indicators are measures that provide information about awareness, attitudes, constraints, capacity, and behaviors that are expected to lead to water quality improvement and protection. By measuring these social indicators over time, water quality managers can better target their project activities and assess their accomplishments.

The development team worked with stakeholders across the region to identify a set of thirteen "core" social indicators that address important components of practice-adoption and capacity-building processes. The indicators can be aggregated across projects and across state programs.

A broader set of "supplemental" social indicators was also identified for potential future development and application. The

indicators will help project staff focus and evaluate their efforts toward:

- 1) increasing NPS awareness and knowledge among their target audience;
- 2) changing attitudes in a way that might facilitate the adoption of NPS practices;
- 3) reducing constraints to adoption of NPS management practice;
- 4) increasing use of NPS management practices of the target audience; and
- 5) increasing their project's capacity to address NPS water issues.

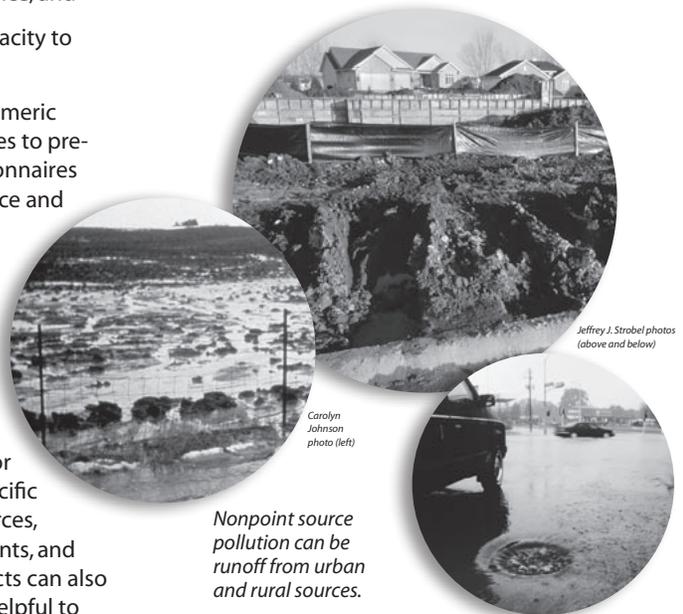
The core social indicators are numeric measures derived from responses to pre-project and post-project questionnaires completed by the target audience and project staff. As part of the development initiative, the regional team has created an online support system to help projects produce questionnaires, enter and analyze data, and apply their results. The questionnaires use consistent formats to collect social indicator data while enabling project-specific customization for pollution sources, management practices, constraints, and communication channels. Projects can also add locally relevant questions helpful to their planning and management efforts.

For an example of how this system would work, consider an NPS project focused on reducing sediments and nutrients in an agricultural watershed. After using models to identify areas with a high potential for contributing sediments and nutrients, project staff identify the individuals making decisions for those lands as their target audience. They use a social indicators questionnaire to collect information from their target audience about perceptions and knowledge about local water quality issues, awareness and use of relevant management practices, factors that motivate and constrain actions, and trusted local sources of information.

Responses influence the project's outreach efforts and form baseline values for indicators related to awareness, attitudes, constraints, and behaviors. As the project ends, staff follows up with another questionnaire to measure their success and complete an assessment of their activities

and local capacity to continue addressing the issues.

The regional social indicators project is beginning a three-year pilot-testing phase. Pilot testing will assess the indicators, the effectiveness of alternative collection methods, and the overall usability and utility of the indicators system for NPS projects and state-level programs. Pilot projects will use established protocols for documenting issues related to staff capacity, level of assistance provided during implementation, costs, and other questions of interest. The



regional team is working with the state NPS programs across the Great Lakes Region to identify pilot projects to test the system. In Wisconsin, the indicators are being tested for planning efforts in the Lower Fox River Basin. Other Wisconsin pilot projects will be identified soon.

Using this social indicators system requires environmental planning approaches to identify water quality concerns and critical areas for management efforts. The development team hopes that social indicators will help NPS projects to identify and engage their target audiences more effectively, and over time, to better assess and adapt their efforts. Over the next few years, the project will provide insights on the practical aspects of integrating social data into NPS planning and management. 🙌

For additional details and updates on this project, visit <http://www.uwex.edu/ces/regionalwaterquality/Flagships/Indicators.htm> or contact Ken Genskow via e-mail at [kgenskow@wisc.edu](mailto:kgenskow@wisc.edu)