Using Social Indicators in Watershed Management Projects

Webcast Sponsored by EPA's Watershed Academy

May 1, 2013
1:00pm – 3:00pm
Dr. Linda Prokopy, Purdue University
Dr. Ken Genskow, University of Wisconsin-Madison/Extension

Webcast Logistics

• To Ask a Question – Type your question in the “Questions” tool box on the right side of your screen and click “Send.”

• To report any technical issues (such as audio problems) – Type your issue in the “Questions” tool box on the right side of your screen and click “Send” and we will respond by posting an answer in the “Questions” box.
Presenters

Dr. Linda Prokopy
Associate Professor
Department of Forestry and Natural Resources
Email: lprokopy@purdue.edu; tel: 765-496-2221

Dr. Ken Genskow
Associate Professor and Water Resources Specialist
Department of Urban and Regional Planning
University of Wisconsin-Madison/UW-Extension
Email: kgenskow@wisc.edu; tel: 608-262-8756

Today’s Webinar

Purpose:
- How you can use social indicators to increase conservation adoption and evaluate project effectiveness

Process:
- Presentation
- Overview and background for social indicators
- Development of social indicators for EPA Region 5
- Pilot testing and example project
- How YOU can use social indicators!
- Discussion
Learning Objectives

- Participants will...
  - Be able to describe the human dimensions of natural resources management
  - Understand some basic concepts of behavior change
  - Understand a framework for using social indicators in nonpoint source management
  - Consider applications to your own work
  - Have Fun!

Part 1: Overview and Background
“Typical” NPS projects

- Watershed based – restoration and protection
- Goals are reduction oriented
  - Total load reduction (modeled)
  - In-stream response problematic
- Voluntary involvement
- Technical and $ assistance not targeted
  - First-come basis
  - Multi sources
- Reporting
  - Administrative indicators
  - Environmental indicators

Human Dimensions

People – Environment Interactions

- Impacts on watershed
  - Water quality
  - Water volume
  - Habitat
  - Species diversity/invasives

- Impacts on people
  - Health
  - Recreational
  - Cultural/spiritual
  - Economic

Management Responses

- Legal and institutional frameworks
- Research, monitoring, analysis
- Decision-making processes
- Action plans
Three Types of Indicators for Watershed Management

- Environmental
  - Nutrient loads, E. coli

- Administrative
  - Bean counting!
  - Number of plans written, number of newsletters distributed

- Social

Challenges in Water Quality Management

- Where and how to focus resources?
- How to know if making a difference?
- Administrative Environment:
  - Increasing competition/decreasing resources
  - Accountability demands
  - Resources for staff?
Management Response

Options to Influence:
- Force/consequences
- Persuade
  - Outreach and education
  - Financial Support
  - Technical Support

Social dimensions and evaluation

- Why evaluate?
  - Document accomplishments
  - Learn and improve
  - Demonstrate accountability
  - Gain credibility and support
- Social Dimensions? Human Dimensions?
Human Dimensions

- Cultural, social, economic values
- Social impacts
- Individual and social behavior
- Demographics
- Legal and institutional frameworks
- Communication and education
- Management decisions

"People side"

HD Behavior & Effects

- Driving Forces
  - Recreation, Tourism, Leisure
  - Urbanization/growth
  - Commerce, transportation, industry
  - Stewardship, public involvement

- Human Behavior

- Effects of Change
  - Biophysical
    - Land, habitat, water
  - Social
    - Access, quality of life
  - Economic
    - Opportunities, base
  - Managerial
    - Research, monitoring, regulation, education

- Management Strategies
Social Science Methods

- Interviewing
- Focus groups
- Surveys
- Observation
- Secondary data analysis
- Content analysis
- Demographic analysis
- Cost-benefit analysis
- Non-market valuation
- Stakeholder analysis
- Social Assessment/Social Impact assess
- Needs assessment
- Network analysis
- Rapid appraisal

Theories of Behavior Change

- Theory of Planned Behavior (Ajzen)
  - Attitudes Toward Behavior
  - Social Norms
  - Perceived Behavioral Control
  - Behavioral Intent
  - Behavior / Action

- Diffusion of Innovations (Rogers)
  - knowledge
  - persuasion
  - decision
  - implementation
  - confirmation
Reduction

- Is it worth it? -- Motivation
- Can I do it? -- Ability

- Focus on key/ "vital" behaviors
- Message AND messenger
- More than words

Influencing Behavior

Based on Patterson et al, 2008
Innovativeness and Adoption

Rogers, Everett M. 1995. Diffusion of Innovations

Factors That Influence Farmer Decisions

Nowak, Shepard, Okeefe
### Willingness to Behave

<table>
<thead>
<tr>
<th>Self Interest</th>
<th>Already prone to behave</th>
<th>Not yet convinced</th>
<th>Resistant to behave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benefits</strong></td>
<td>Benefits are apparent</td>
<td>Need to see benefits</td>
<td>Can’t see/disagree with benefits</td>
</tr>
<tr>
<td><strong>Approach</strong></td>
<td>Education</td>
<td>Marketing</td>
<td>Regulation</td>
</tr>
</tbody>
</table>

*Based on Rothschild, 1999*

### Common Themes

- People respond differently
- Resource Managers must convey reasoning for behavior change
- Resource Managers must understand constraints and motivations
  - Educational, financial, technical, cultural
  - Inertia and apathy
Targeting

- Focus efforts on area of greatest impact
  - Specific audience
  - Specific geographic area
- Some behaviors in some places can have a disproportionate impact on water quality

Salt Creek Watershed, IN

Targeting Critical Areas

La Moine River Watershed, IL

Legend:
- Critical Areas
- Streams
- Watershed Boundary
- Wetland Landowners


Geographical Allocation Approaches

Part 2: Development of Social Indicators for EPA Region 5

Project Overview

- Developed a system for collecting and using social data to evaluate water quality management efforts in Great Lakes Region/EPA Region 5

- Complement existing “administrative” and “environmental” indicators

- Partnership with USEPA, state water quality agencies, and land grant universities; pilot project with NRCS through GLRI

- Provide assistance & support to state programs and state 319 projects
Project Collaborators

- USEPA Region 5
- Illinois EPA
- Indiana DEM
- Michigan DNRE
- Minnesota PCA
- Ohio EPA
- Wisconsin DNR
- Great Lakes Regional Water Program (USDA-NIFA)
- Land Grant Universities in USEPA Region 5

Process

- 2005: Review & Scoping
- Stakeholder Input
- Indicator compilation
- 2005-2006
- Feedback, Refinement, Operationalize
- 2007-2011
- Endorsement
- Testing

Genskow and Prokopy, 2010, Society and Natural Resources
Conceptual Model

Administrative  Social  Environmental

Program Activities

- Social norms
- Skills
- Constraints
- Values
- Knowledge
- Attitudes
- Capacity
- Awareness

Use of water quality management Practices

Reduction in Stressors

Improvement & protection of water quality

- 5 categories with goals & indicators
- Additional contextual data
- Supplemental indicators

Prokopcy, Genskow et al. Journal of Extension, 2009
Social Indicators for Planning & Evaluation System (SIPES)

- Critical areas & target audiences
- Scale is project level
- Consistent survey questions and data collection protocols
  - Used across projects
  - Compared over time
  - Compared across projects
Before collecting social indicators:

1. What are the specific NPS problems this project is trying to address?
2. What are the critical areas that contribute to the problem?
3. Who are the target audience(s) for the NPS problem(s) your project will address?
4. What actions do you want the target audience(s) to take regarding the NPS problems?

Part 3: Pilot Testing and Example Project
Pilot Testing

Over 30 projects in six states
- Rural/urban
- Large/small
- Experienced/non-
- “319”/non-319

NRCS Pilot Project

Several partners in the watershed (SWCD's, NRCS, RC&D, Indiana Wildlife Federation)

NRCS hired Purdue University using GLRI funds to measure baseline social indicators
Before collecting social indicators:

1. What are the specific NPS problems this project is trying to address? *Sediment, nutrients, E. coli*

2. What are the critical areas that contribute to the problem? “*agricultural*” land draining into Lake Michigan

3. Who are the target audience(s) for the NPS problem(s) your project will address? *Both small and large landowners; both traditional and non-traditional farmers*

4. What actions do you want the target audience(s) to take regarding the NPS problems? *Selected several practices*

Survey Administration

NRCS Example:

- December 2010 – February 2011
- Target Audience: Landowners (>2 acres) in the Little Calumet-Galien Watershed
- Mailed survey: multiple contacts
- 40% response (1034/2574)
Survey Content

- Awareness:
  - water quality pollutants and sources
  - Management practices
- Attitudes toward water quality issues
- Use of practices (behaviors)
- Constraints to Practices
- Sources of information

Reviewing Results with Local Projects

Photo from Watershed Diagnostic Study of the Little Calumet—Gallien River Watershed, 2001
Part 1: Review Demographic and Practice Adoption Data

1. Does anything stand out about the demographic data?
2. How many people are not using, but are willing to try the practice?
3. What level of awareness is there about each practice?
4. Which practices would you focus on?

Part 2: Review Awareness, Attitudes and Constraints Data

5. What interesting patterns do you see?
6. What constraints and awareness issues might need to be addressed for behavior to change?
7. What attitudes can you take advantage of in crafting your outreach message?
Part 3: Developing an Outreach Strategy

8. What social outcomes need to be achieved to improve water quality (changes in social indicators)?

9. What messages will be effective at reaching members of the target audience?

10. Who should deliver the message? How should it be delivered?

11. Additional information needs?

Water Impairments

Landowner Perceptions

Moderate/Severe Problem

![Chart showing landowner perceptions of water impairments by land size and type of impairment.](chart.png)
Sources of Pollutants

Landowners' Perception of Moderate or Severe Pollution Sources

Attitudes toward Water Quality Issues

Using recommended conservation practices on farms improves water quality.

It is my personal responsibility to help protect water quality.

The quality of life in my community depends on good water quality in local streams, rivers, and lakes.

The economic stability of my community depends upon good water quality.

I would be willing to change the way I manage my property to improve water quality.

I would be willing to pay more to improve water quality (for example, through local taxes or fees).
Use of Practices

Percent of those to whom it applies that are willing to try practice (yes or maybe)

<table>
<thead>
<tr>
<th>Practice</th>
<th>2-5 acres</th>
<th>5-50 acres</th>
<th>50+ acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover crops</td>
<td>88%</td>
<td>87%</td>
<td>88%</td>
</tr>
<tr>
<td>Monitor well</td>
<td>88%</td>
<td>90%</td>
<td>87%</td>
</tr>
<tr>
<td>Forested and vegetative buffers</td>
<td>84%</td>
<td>89%</td>
<td>80%</td>
</tr>
<tr>
<td>Nutrient and manure management</td>
<td>89%</td>
<td>87%</td>
<td>82%</td>
</tr>
</tbody>
</table>

Constraints to Using Forested and Vegetative Buffers
Pilot Testing

Results show several positive findings; also some challenges

Lessons Learned - Positive

- Groups used data to improve outreach activities
- Benefits perceived as greater than costs
  - Generally costs less than $10K per survey round
- Groups can do this themselves if they follow guidance but can also contract the work out
- SIDMA (on line tool) very helpful and simplifies process
- Data can be used to compare projects
Lessons Learned - Challenges

- Timing is important
  - Baseline data needs to be collected *after* four questions can be answered
  - Second round data (for evaluation) needs to be collected after sufficient outreach has occurred
- There are critical steps that need followed that groups need to do themselves.
  - Guidance is provided but not always read/followed
- Biophysical scientists struggle interpreting and using social data – need guidance

Questions?

- SI Step 1: Review project plan
- SI Step 2: Collect and enter pre-project survey data
- SI Step 3: Review data and refine social outcomes
- SI Step 4: Monitor social data throughout project
- SI Step 5: Collect and enter post-project survey data
- SI Step 6: Collect and enter additional post-project data
- SI Step 7: Review data and use results
Part 4: How YOU Can Use Social Indicators

Highlights
• Checklists for all 7 steps
• How to use SIDMA
• Choosing a survey method
• Selecting sample size
• Administering a survey
• Interpreting data
• Designing outreach programs
• Sample surveys and cover letters

Download at: www.iwr.msu.edu/sidma
Introduction to Surveys

What is a Survey?

- One of the most commonly conducted types of quantitative, social science research
- Commonly investigates a population’s:
  - Behavior
  - Attitudes/Beliefs/Opinions
  - Characteristics
  - Expectations
  - Self-classification
  - Knowledge

Steps in Survey Use

- What do you need to know?
- Who is your target population?
- What’s the best way to get the info?
- Create, pilot, refine questionnaire
- Census or sample?
- **Send out your questionnaire.**
  - Standard procedures
- Analyze, interpret and communicate the results
Sampling

- **Probability**
  - Simple Random, Stratified, Cluster Sampling

- **Non-probability**
  - Convenience, snowball, quota, purposive (though not typically done for survey research)

- **Sample size—depends on:**
  - Cost and time constraints
  - Degree of precision needed
    - Larger samples provide more precise estimates of population parameters
    - More heterogeneous populations require larger samples

---

### Table D.2: Sample Size

<table>
<thead>
<tr>
<th>Size of Target Audience</th>
<th>Target Number of Responses Needed</th>
<th>Number of Questionnaires to Mail*</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;535</td>
<td>217</td>
<td>Use all names (conduct a census)</td>
</tr>
<tr>
<td>750</td>
<td>254</td>
<td>627</td>
</tr>
<tr>
<td>1,000</td>
<td>278</td>
<td>686</td>
</tr>
<tr>
<td>2,500</td>
<td>333</td>
<td>822</td>
</tr>
<tr>
<td>5,000</td>
<td>357</td>
<td>881</td>
</tr>
<tr>
<td>10,000</td>
<td>370</td>
<td>914</td>
</tr>
<tr>
<td>25,000</td>
<td>378</td>
<td>933</td>
</tr>
<tr>
<td>50,000</td>
<td>381</td>
<td>941</td>
</tr>
<tr>
<td>100,000</td>
<td>383</td>
<td>946</td>
</tr>
<tr>
<td>1,000,000</td>
<td>384</td>
<td>948</td>
</tr>
<tr>
<td>10,000,000</td>
<td>384</td>
<td>948</td>
</tr>
</tbody>
</table>

*Number of questionnaires to mail is based upon a 95% confidence level and a sampling error of ±5%. Table adapted from Dillman."
Response Rate & Non-Response Bias

- Higher response rate
  - yields greater statistical power
  - Reduces chance of bias

- Non-response bias can be assessed:
  - Contacting non-respondents with reduced set of questions
  - Comparing respondents to census data

Increasing Response Rates

- Repeated contacts
  1. Pre-notice postcard or letter
  2. Survey with letter and stamped return envelope
  3. Reminder post-card or letter
  4. Second survey
  5. Third survey (optional) or reminder letter

Figure F.1: Timeline for SI mailing results
Increasing Response Rates

- Ease of response - make it easy for them to respond!
  - Easy to understand
  - Easy to complete
  - Easy to return

- Tips:
  - Appearance – attractive, interesting, engaging
  - Make sure the wording is clear and appropriate for the audience
  - Provide very clear directions
  - Reduce their costs for returning

- Pilot Test!

Create an Account

www.iwr.msu.edu/sidma
SIDMA Home Page

Help
Options
Add a Survey

Start your New Survey
Build a Survey from SIDMA’s core questions

Select Your Questions
### Your Opinions

All questions required.

These questions are required in their entirety. It provides data regarding the attitudes of your target audience about general water quality issues. The responses from the questions in this table will be scored together as an index to create one overall attitudinal score.

Please indicate your level of agreement or disagreement with the statements below.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Sources of Water Pollution

Category required; select questions relevant to your watershed.

This category provides information about your target audience’s awareness about the causes of water quality impairments. This question is required, but the options should be customized for your watershed. Select no less than three (3) and no more than eighteen (18) sources that are applicable in your watershed.

The items listed below are sources of water quality pollution across the country. In your opinion, how much of a problem are the following sources in your area?

<table>
<thead>
<tr>
<th></th>
<th>Not a Problem</th>
<th>Slight Problem</th>
<th>Moderate Problem</th>
<th>Severe Problem</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Follow Blue Notes

Many Choices For Sources
Many Choices For Practices

Edit Surveys
Produce questionnaire
- download into MS Word
- edit and print
- data entry by staff
- option for public survey
Input URL

Search for Projects
Reviewing Results in SIDMA

Select “View response frequencies”
Click on blue items sort and chart functions

---

**Springfield Creek Survey**

**Rating of Water Quality**

Overall, how would you rate the quality of the water in your area?

<table>
<thead>
<tr>
<th>Question #</th>
<th>Poor (1)</th>
<th>Okay (2)</th>
<th>Good (3)</th>
<th>Don't Know (9)</th>
<th>Mean (SD)</th>
<th>Valid Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. For canoeing / kayaking / other boating</td>
<td>4</td>
<td>40</td>
<td>49.1</td>
<td>6.9</td>
<td>2.48 (0.58)</td>
<td>326 / 350</td>
</tr>
<tr>
<td>2. For eating locally caught fish</td>
<td>51.1</td>
<td>26.9</td>
<td>6.9</td>
<td>15.1</td>
<td>1.48 (0.64)</td>
<td>297 / 350</td>
</tr>
</tbody>
</table>

**Water Impairments**

Below is a list of water pollutants and conditions that are generally present in water bodies to some extent. The pollutants and conditions become a problem when present in excessive amounts. In your opinion, how much of a problem are the following water impairments in your area?

<table>
<thead>
<tr>
<th>Question #</th>
<th>Not a Problem (1)</th>
<th>Slight Problem (2)</th>
<th>Moderate Problem (3)</th>
<th>Severe Problem (4)</th>
<th>Don't Know (9)</th>
<th>Mean (SD)</th>
<th>Valid Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sedimentation (dirt and soil) in the water</td>
<td>3.1</td>
<td>10</td>
<td>32.9</td>
<td>29.4</td>
<td>24.6</td>
<td>3.17 (0.81)</td>
<td>264 / 350</td>
</tr>
<tr>
<td>2. Phosphorus</td>
<td>2</td>
<td>7.4</td>
<td>24.9</td>
<td>32</td>
<td>52.6</td>
<td>3.04 (0.78)</td>
<td>166 / 350</td>
</tr>
<tr>
<td>3. Trash or debris in the water</td>
<td>3.1</td>
<td>10</td>
<td>30</td>
<td>26.9</td>
<td>30</td>
<td>3.15 (0.83)</td>
<td>245 / 350</td>
</tr>
<tr>
<td>4. Oil and grease</td>
<td>5.1</td>
<td>8</td>
<td>30</td>
<td>26.9</td>
<td>30</td>
<td>3.12 (0.88)</td>
<td>245 / 350</td>
</tr>
<tr>
<td>5. Toxic materials in the water</td>
<td>2</td>
<td>8</td>
<td>28.6</td>
<td>23.4</td>
<td>38</td>
<td>3.18 (0.78)</td>
<td>217 / 350</td>
</tr>
<tr>
<td>6. Cloudiness of the water</td>
<td>2.3</td>
<td>8.9</td>
<td>32.3</td>
<td>28.6</td>
<td>28</td>
<td>3.21 (0.78)</td>
<td>252 / 350</td>
</tr>
<tr>
<td>7. Algae in the water</td>
<td>1.7</td>
<td>6</td>
<td>34.3</td>
<td>29.7</td>
<td>28.3</td>
<td>3.28 (0.72)</td>
<td>251 / 350</td>
</tr>
<tr>
<td>8. Invasive aquatic plants and animals</td>
<td>2</td>
<td>9.7</td>
<td>30.6</td>
<td>32.9</td>
<td>24.9</td>
<td>3.25 (0.78)</td>
<td>263 / 350</td>
</tr>
</tbody>
</table>
Phosphorus

Response %
- Don't Know: 2.0%
- Slight Problem: 7.4%
- Moderate Problem: 13.1%
- Severe Problem: 24.9%
- Not a Problem: 52.6%

Responses: 350

as Bar Chart

as Pie Chart
### Water Impairments

Below is a list of water pollutants and conditions that are generally present in water bodies to some extent. The pollutants and conditions become a problem when present in excessive amounts. In your opinion, how much of a problem are the following water impairments in your area?

<table>
<thead>
<tr>
<th>Question #</th>
<th>Not a Problem (1)</th>
<th>Slight Problem (2)</th>
<th>Moderate Problem (3)</th>
<th>Severe Problem (4)</th>
<th>Don't Know (9)</th>
<th>Mean (SD)</th>
<th>Valid Responses / Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Phosphorus</td>
<td>2</td>
<td>7.4</td>
<td>24.9</td>
<td>13.1</td>
<td>52.6</td>
<td>3.04 (0.78)</td>
<td>166 / 350</td>
</tr>
<tr>
<td>5. Toxic materials in the water</td>
<td>2</td>
<td>8</td>
<td>28.6</td>
<td>23.4</td>
<td>38</td>
<td>3.18 (0.78)</td>
<td>217 / 350</td>
</tr>
<tr>
<td>3. Trash or debris in the water</td>
<td>3.1</td>
<td>10</td>
<td>30</td>
<td>26.9</td>
<td>30</td>
<td>3.15 (0.83)</td>
<td>245 / 350</td>
</tr>
<tr>
<td>4. Oil and grease.</td>
<td>5.1</td>
<td>8</td>
<td>30</td>
<td>26.9</td>
<td>30</td>
<td>3.12 (0.88)</td>
<td>245 / 350</td>
</tr>
<tr>
<td>7. Algae in the water</td>
<td>1.7</td>
<td>6</td>
<td>34.3</td>
<td>29.7</td>
<td>28.3</td>
<td>3.28 (0.72)</td>
<td>251 / 350</td>
</tr>
<tr>
<td>6. Cloudiness of the water</td>
<td>2.3</td>
<td>8.9</td>
<td>32.3</td>
<td>28.6</td>
<td>28</td>
<td>3.21 (0.78)</td>
<td>252 / 350</td>
</tr>
<tr>
<td>8. Invasive aquatic plants and animals</td>
<td>2</td>
<td>9.7</td>
<td>30.6</td>
<td>32.9</td>
<td>24.9</td>
<td>3.25 (0.78)</td>
<td>263 / 350</td>
</tr>
<tr>
<td>1. Sedimentation (dirt and soil) in the water</td>
<td>3.1</td>
<td>10</td>
<td>32.9</td>
<td>29.4</td>
<td>24.6</td>
<td>3.17 (0.81)</td>
<td>264 / 350</td>
</tr>
</tbody>
</table>

---

**For “key” practices**

**Rain Garden**: A garden that uses native plants to absorb and filter stormwater collected off a roof, parking lot, sidewalk, or driveway.

13. How familiar are you with this practice? (Responses: 350)
   - 8% Not relevant
   - 30.6% Never heard of it
   - 19.1% Somewhat familiar with it
   - 29.4% Know how to use it; not using it
   - 12.9% Currently use it

14. If the practice is not relevant, please explain why. 

15. Are you willing to try this practice? (Responses: 350)
   - 59.7% Yes or already do
   - 20.3% Maybe
   - 20% No
### How much do the following factors limit your ability to implement this practice?

<table>
<thead>
<tr>
<th>Question #</th>
<th>Not at all (4)</th>
<th>A little (3)</th>
<th>Some (2)</th>
<th>A lot (1)</th>
<th>Don’t Know (9)</th>
<th>Mean (SD)</th>
<th>Valid Responses / Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Don’t know how to do it</td>
<td>18</td>
<td>11.1</td>
<td>35.7</td>
<td>11.4</td>
<td>23.7</td>
<td>2.47 (1.01)</td>
<td>267 / 350</td>
</tr>
<tr>
<td>17. Time required</td>
<td>19.4</td>
<td>7.1</td>
<td>37.1</td>
<td>13.4</td>
<td>22.9</td>
<td>2.42 (1.05)</td>
<td>270 / 350</td>
</tr>
<tr>
<td>18. Cost</td>
<td>14</td>
<td>8.9</td>
<td>39.4</td>
<td>16.9</td>
<td>20.9</td>
<td>2.25 (0.99)</td>
<td>277 / 350</td>
</tr>
<tr>
<td>19. The features of my property make it difficult</td>
<td>18.9</td>
<td>8.0</td>
<td>37.7</td>
<td>8.3</td>
<td>27.1</td>
<td>2.51 (1.1)</td>
<td>255 / 350</td>
</tr>
<tr>
<td>20. Insufficient proof of water quality benefit</td>
<td>21.7</td>
<td>8.9</td>
<td>33.1</td>
<td>7.4</td>
<td>28.9</td>
<td>2.63 (1.03)</td>
<td>249 / 350</td>
</tr>
<tr>
<td>21. Desire to keep things the way they are</td>
<td>20.9</td>
<td>8.3</td>
<td>32.9</td>
<td>10</td>
<td>28</td>
<td>2.56 (1.05)</td>
<td>252 / 350</td>
</tr>
<tr>
<td>22. Physical or health limitations</td>
<td>20</td>
<td>13.7</td>
<td>30.9</td>
<td>6.9</td>
<td>28.6</td>
<td>2.66 (0.99)</td>
<td>250 / 350</td>
</tr>
<tr>
<td>23. Hard to use with my farming system</td>
<td>21.7</td>
<td>4.3</td>
<td>37.7</td>
<td>10</td>
<td>26.3</td>
<td>2.51 (1.06)</td>
<td>258 / 350</td>
</tr>
<tr>
<td>24. Lack of equipment</td>
<td>16</td>
<td>16.3</td>
<td>28.9</td>
<td>10.9</td>
<td>28</td>
<td>2.52 (1.1)</td>
<td>252 / 350</td>
</tr>
</tbody>
</table>

### Information Sources

People get information about water quality from a number of different sources. To what extent do you trust those listed below as a source of information about soil and water?

<table>
<thead>
<tr>
<th>Question #</th>
<th>Not at all (1)</th>
<th>Slightly (2)</th>
<th>Moderately (3)</th>
<th>Very much (4)</th>
<th>Am not familiar (9)</th>
<th>Mean (SD)</th>
<th>Valid Responses / Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Local watershed project</td>
<td>5.1</td>
<td>16.9</td>
<td>36.3</td>
<td>21.1</td>
<td>20.6</td>
<td>2.92 (0.86)</td>
<td>278 / 350</td>
</tr>
<tr>
<td>2. University Extension</td>
<td>3.1</td>
<td>10</td>
<td>35.1</td>
<td>38</td>
<td>13.7</td>
<td>3.25 (0.8)</td>
<td>302 / 350</td>
</tr>
<tr>
<td>3. Environmental groups</td>
<td>9.1</td>
<td>32.9</td>
<td>40</td>
<td>13.1</td>
<td>4.9</td>
<td>2.6 (0.94)</td>
<td>333 / 350</td>
</tr>
<tr>
<td>4. Local garden center</td>
<td>14</td>
<td>32</td>
<td>29.4</td>
<td>8.9</td>
<td>15.7</td>
<td>2.39 (0.89)</td>
<td>295 / 350</td>
</tr>
<tr>
<td>5. Lawn care company</td>
<td>11.7</td>
<td>32.9</td>
<td>30</td>
<td>10.3</td>
<td>15.1</td>
<td>2.46 (0.88)</td>
<td>297 / 350</td>
</tr>
<tr>
<td>6. Neighbors / friends</td>
<td>5.1</td>
<td>10</td>
<td>34.9</td>
<td>38</td>
<td>12</td>
<td>3.2 (0.86)</td>
<td>308 / 350</td>
</tr>
<tr>
<td>7. State natural resources agency</td>
<td>8</td>
<td>19.1</td>
<td>39.7</td>
<td>18.3</td>
<td>14.9</td>
<td>2.8 (0.88)</td>
<td>298 / 350</td>
</tr>
<tr>
<td>8. County Health department</td>
<td>5.1</td>
<td>18.9</td>
<td>46.3</td>
<td>16</td>
<td>13.7</td>
<td>2.85 (0.79)</td>
<td>302 / 350</td>
</tr>
</tbody>
</table>
Compare results between surveys.
Upcoming Social Indicators Webinars

**Beginner/Intermediate Course:** creating and implementing survey instruments, data analysis
- Tuesday, June 11th and Thursday, June 13th, 1-3pm EST
- Or
  - Tuesday July 16th and Thursday July 18th, 1-3pm EST

**Advanced Topics:** use results to define priorities, mid-project evaluation, targeting
- Monday, July 29th and Wednesday, July 31st, 1-3pm EST

For more information and to register contact Nick Babin at nbabin@purdue.edu

Background Information about Social Indicators:
http://greatlakeswater.uwex.edu/social-indicators

SIDMA:
http://www.iwr.msu.edu/sidma
Acknowledgements

- USEPA Region 5 NPS Program
- Illinois Environmental Protection Agency
- Indiana Department of Environmental Management
- Michigan Department of Environmental Quality
- Minnesota Pollution Control Agency
- Ohio Environmental Protection Agency
- Wisconsin Department of Natural Resources
- Great Lakes Regional Water Program
- Land Grant Universities in USEPA Region 5
- Indiana NRCS

Ken Genskow, Univ of Wisconsin
Linda Prokopy, Purdue Univ
Jeremiah Asher, Michigan State
Adam Baumgart-Getz, Purdue
Joe Bonnell, Ohio State Univ
Shorna Broussard, Cornell Univ
Cyd Curtis, USEPA
Karlyn Eckman, Univ of Minnesota
Kristin Floress, UW-Stevens Point
Karyn McDermaid, Univ of Illinois
Alicia Molloy, Purdue
Glenn O’Neil, Michigan State
Rebecca Power, UW-Extension
David White, Univ of Illinois
Danielle Wood, Univ of Wisconsin

Speaker Contact Information

Dr. Linda Prokopy
Associate Professor
Department of Forestry and Natural Resources
Email: lprokopy@purdue.edu; tel: 765-496-2221

Dr. Ken Genskow
Associate Professor and Water Resources Specialist
Department of Urban and Regional Planning
University of Wisconsin-Madison/UW-Extension
Email: kgenskow@wisc.edu; tel: 608-262-8756
Participation Certificate

If you would like to obtain participation certificates type the link below into your web browser:


You can type each of the attendees names into the PDF and print the certificates.