

A scenic view of a river or lake with a forested shoreline and a bridge in the distance. The water is calm, reflecting the sky and the surrounding greenery. The sky is blue with some light clouds. The foreground shows a rocky and debris-strewn shoreline.

Using Social Indicators to Promote Best Management Practice Adoption

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Social Indicators for NPS Project Overview

- Develop a system for collecting and using social data to evaluate NPS management efforts in Great Lakes Region/Region 5
- Complement existing “administrative” and “environmental” indicators
- Partnership with USEPA, state water quality agencies, and land grant universities
- Provide assistance & support to state programs and NPS projects

Three Types of Indicators for Watershed Management

Environmental

- Nutrient loads, E. Coli

Administrative

- Bear counting



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

Part 1:
**Human Dimensions of NPS –
Overview and Introduction
to Social Indicators**

Social dimensions and evaluation

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

Human Dimensions

■ “People side”

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

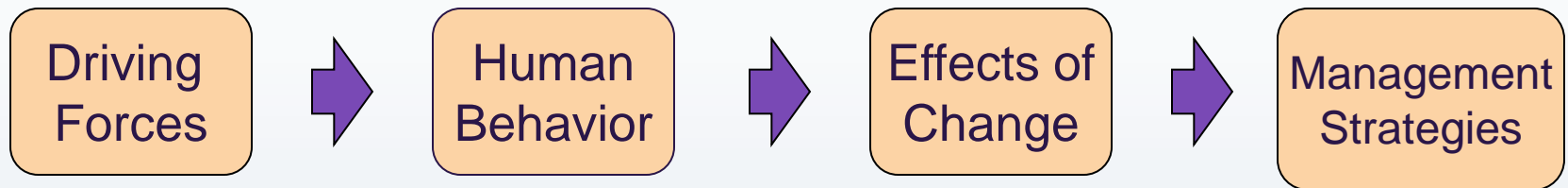
Driving
Forces

Human
Behavior

Effects

Management
Strategies

HD Behavior & Effects

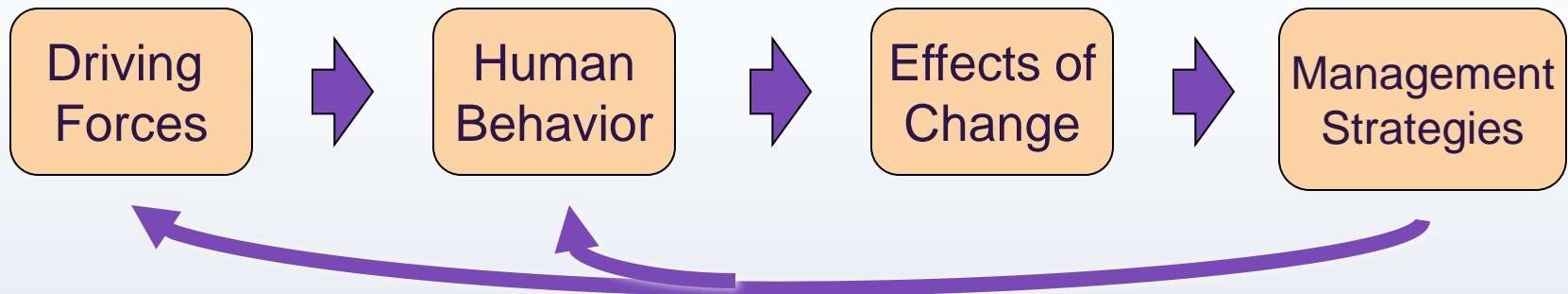


- Recreation, Tourism, Leisure
- Urbanization/growth
- Commerce, transportation, industry
- Stewardship, public involvement



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

Management Response



Options:

■ Regulate

■ Persuade

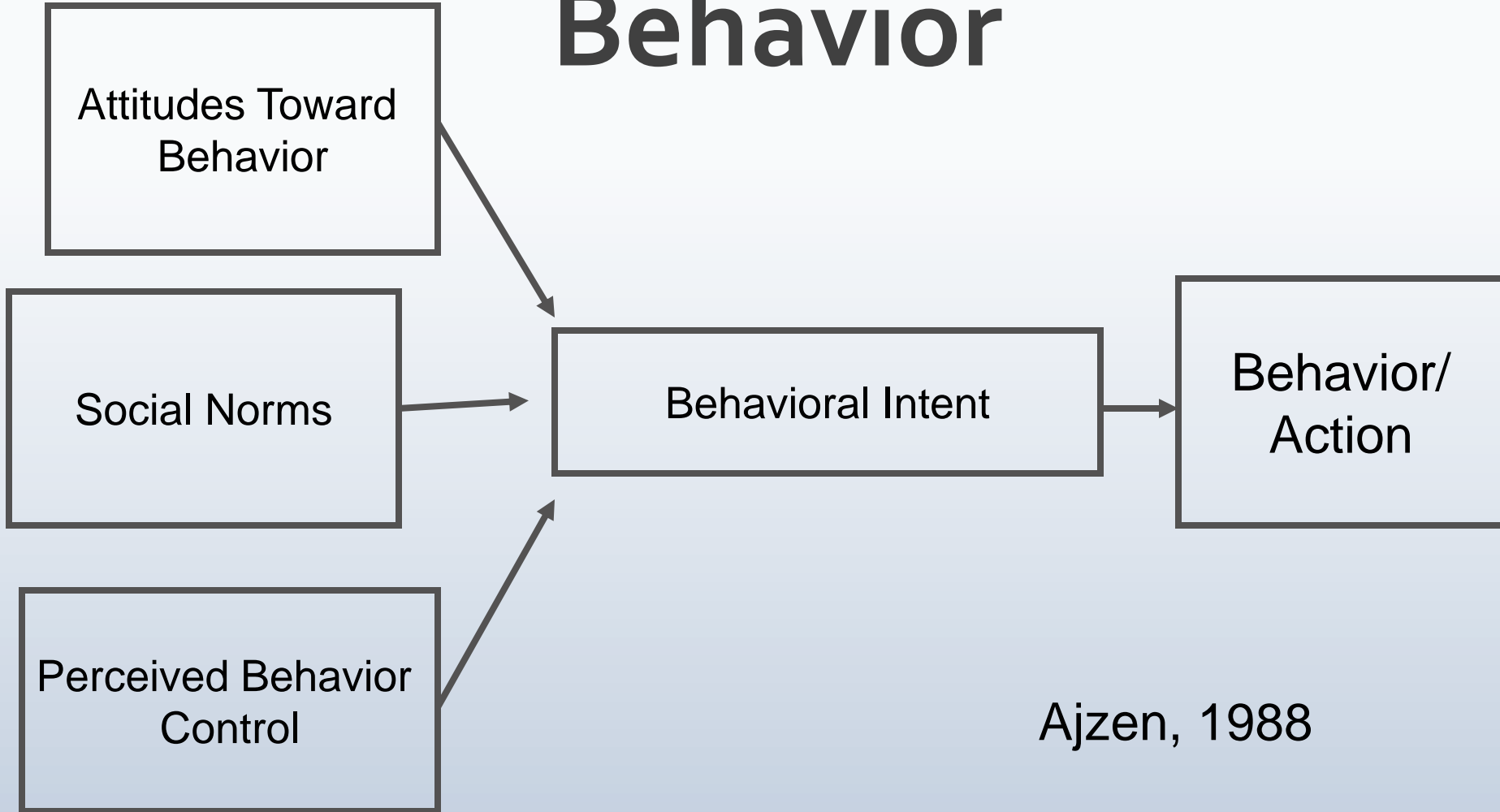
- Outreach and education
- Financial Support
- Technical Support

“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



Theory of Planned Behavior



Ajzen, 1988

Innovation-decision process



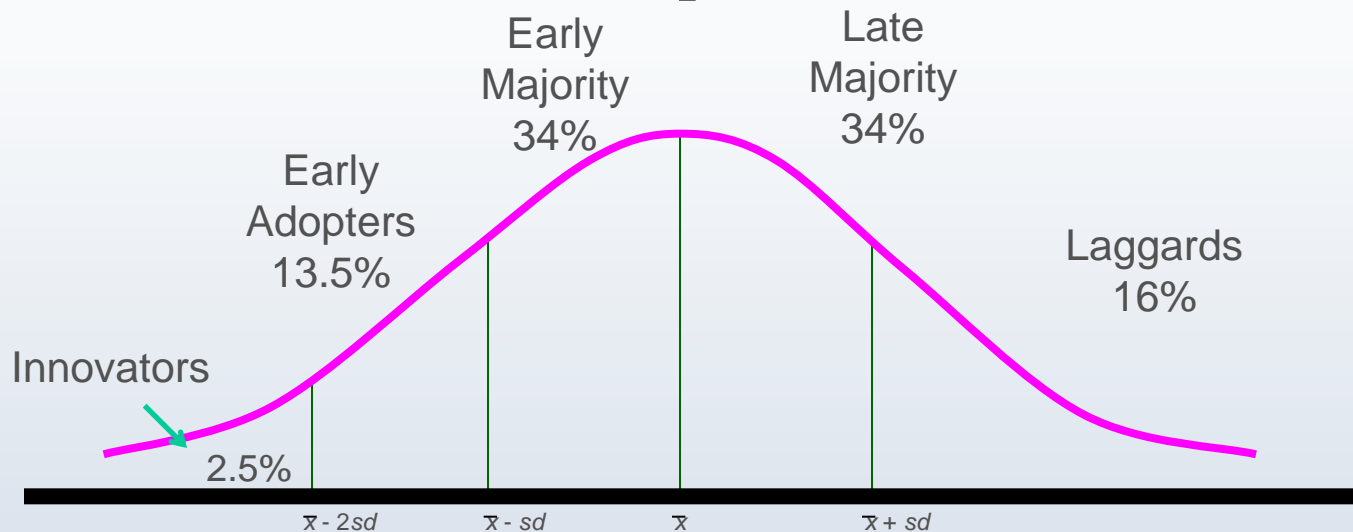
Rogers, 1995

Stages of Change



Prochaska & Velicer, 1997

Innovativeness and Adoption



Rogers, Everett M. 1995. *Diffusion of Innovations*

Willingness to Behave

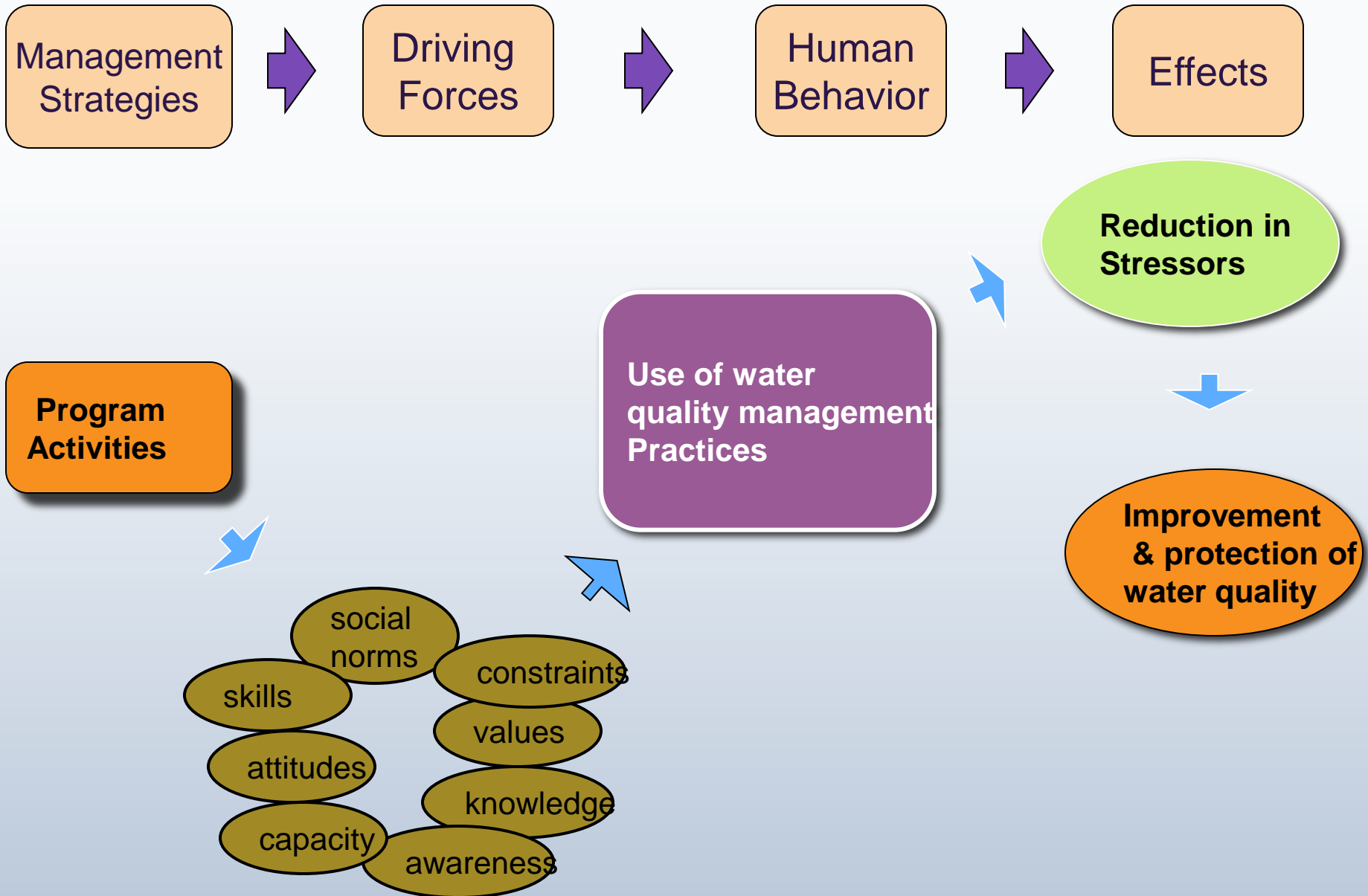
	Already prone to behave	Not yet convinced	Resistant to behave
Self Interest	Benefits are apparent	Need to see benefits	Can't see/disagree with benefits
Approach	<i>Education</i>	<i>Marketing</i>	<i>Regulation</i>

Based on Rothschild, 1999

Common Themes

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

Conceptual Model

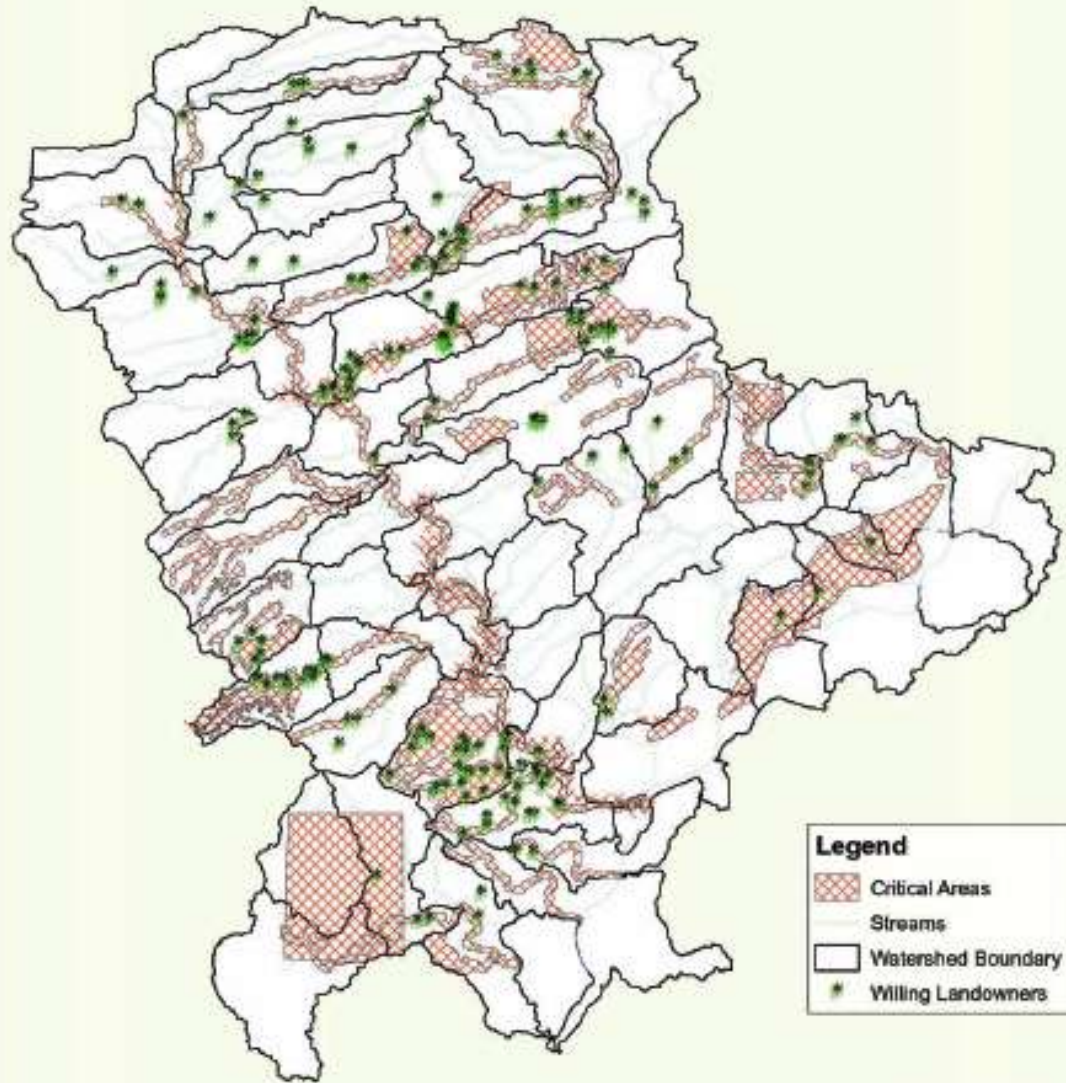


Targeting

- 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

Targeting Critical Areas

La Moine River
Watershed, IL

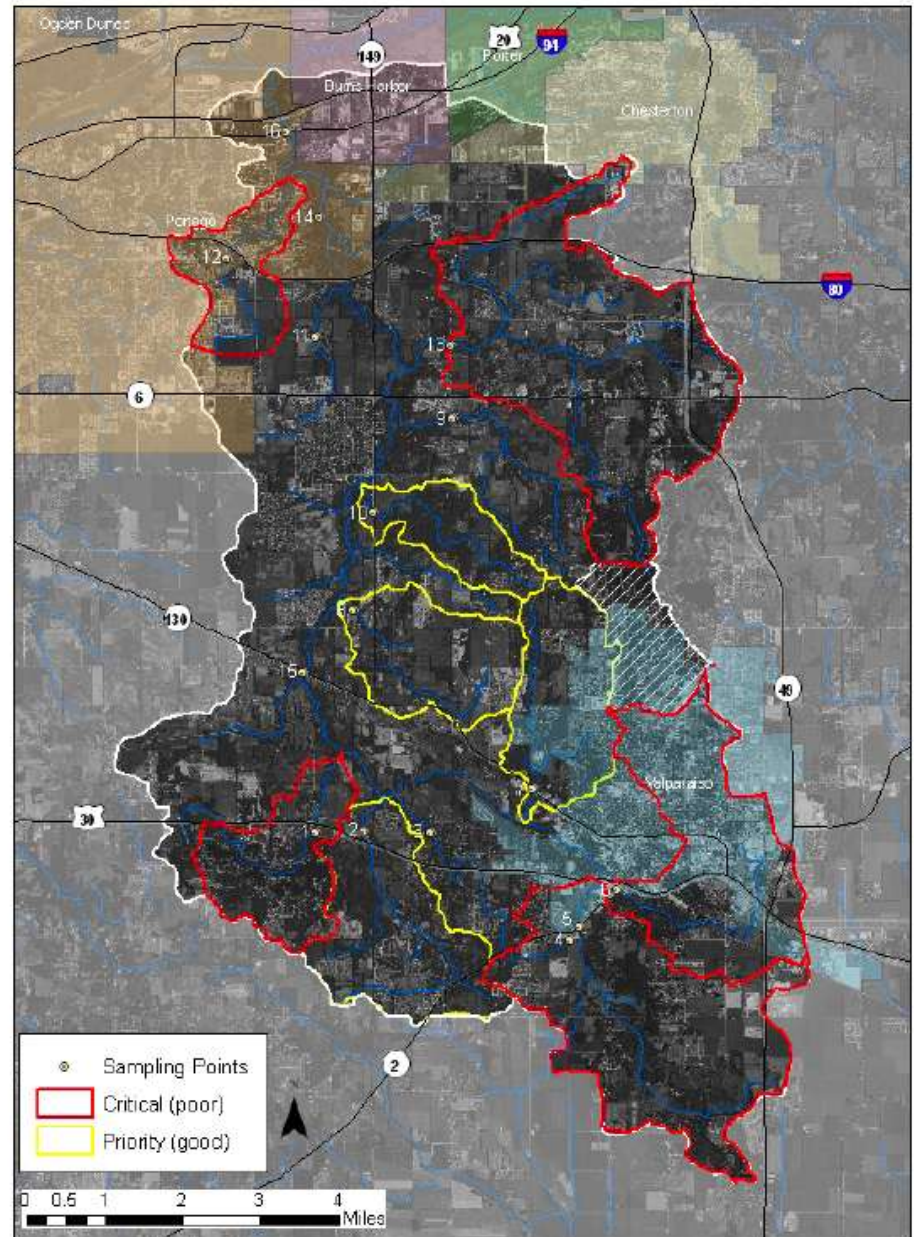


Source: McDermaid, K. 2005. Social Profile: La Moine River Ecosystem Partnership. University of Illinois at Urbana Champaign



Priority & Critical Areas

Salt Creek
Watershed, IN



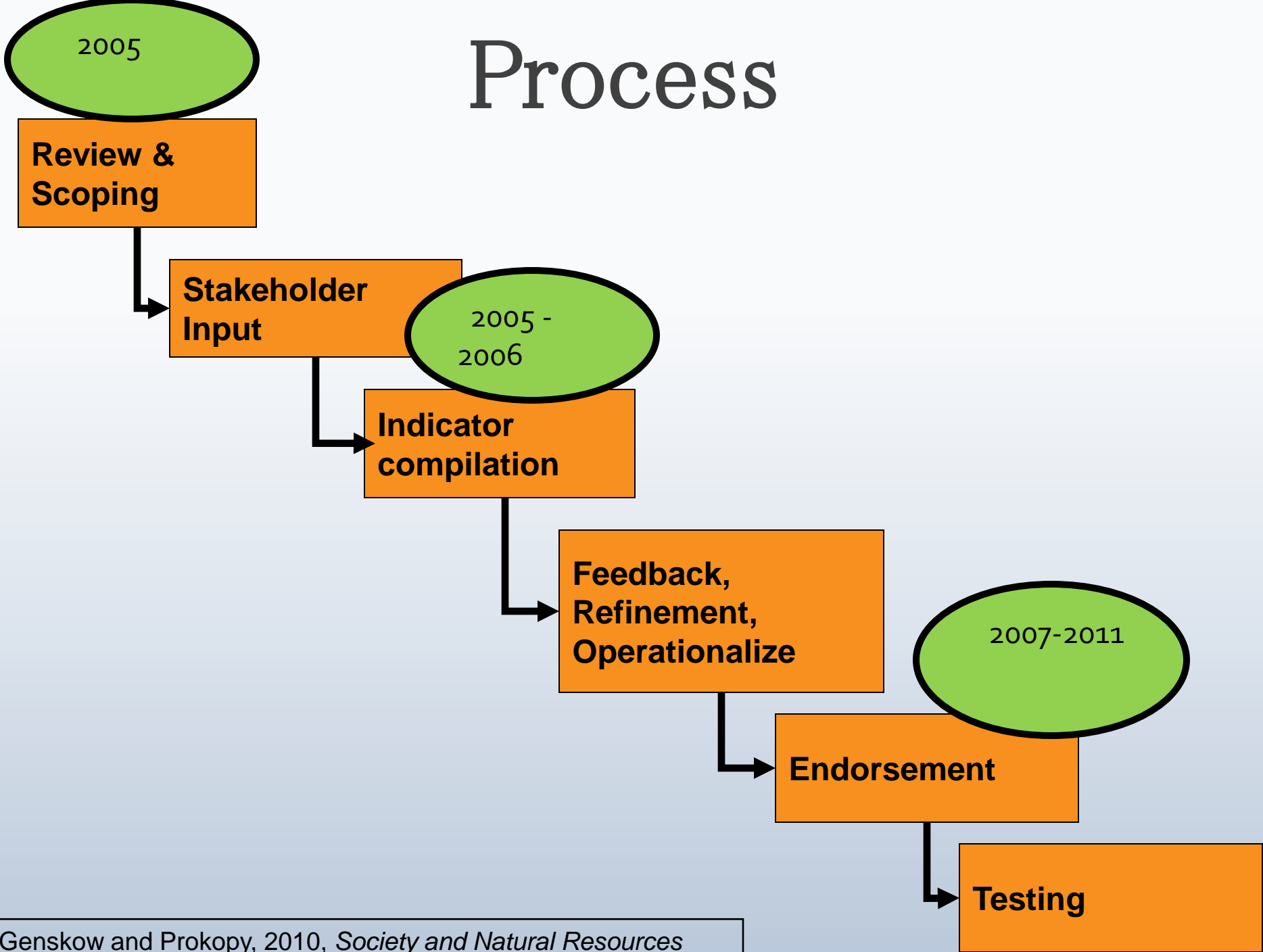
Before collecting social indicators:

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?

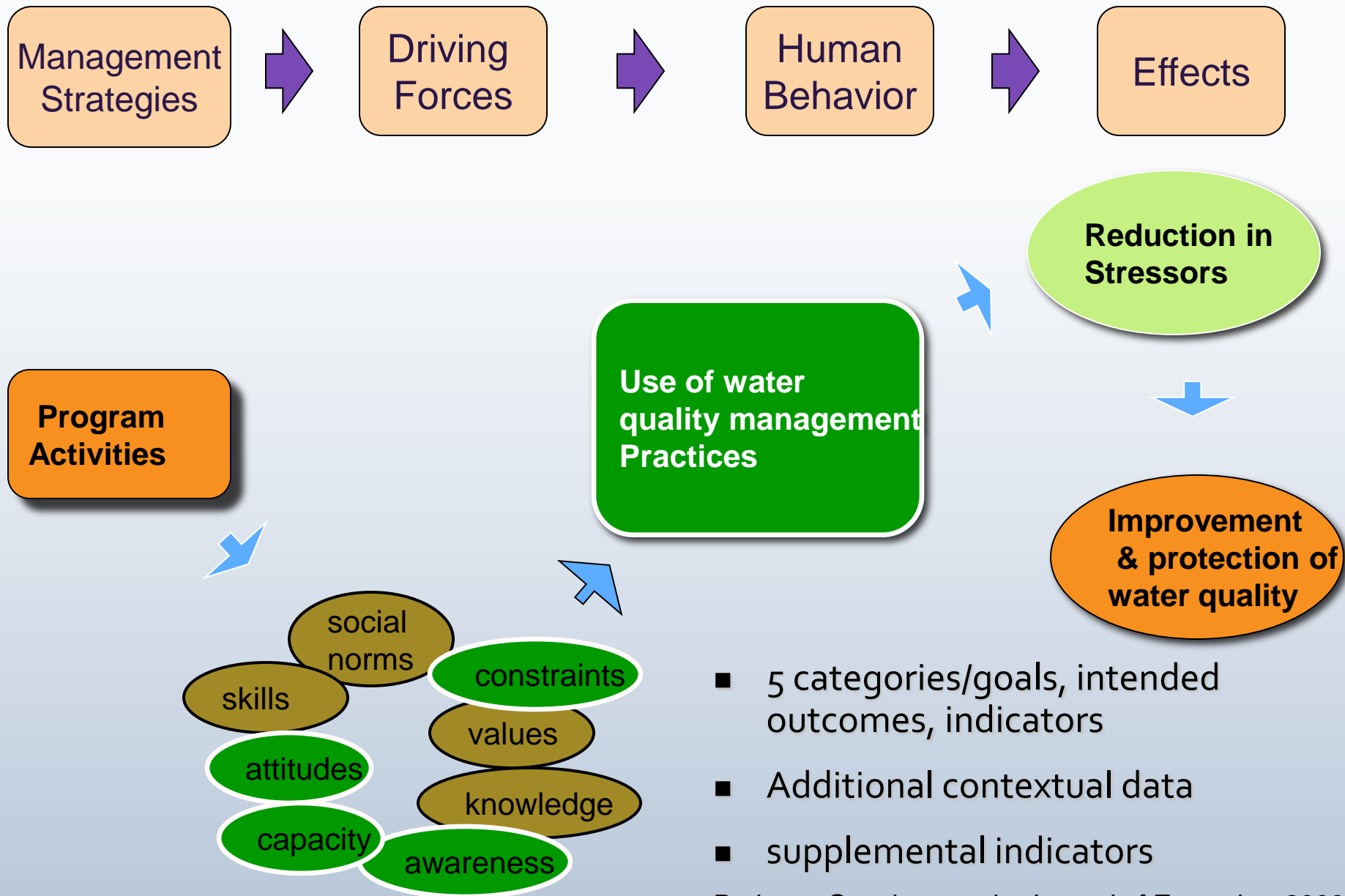
Social Indicators

- Traditional Uses:
 - Human health
 - Housing
 - Education levels
 - Social equity issues
- Regional Challenge
(USEPA & state water quality agencies):
Apply “social indicators” to NPS

Process



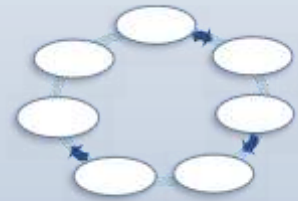
Conceptual Model



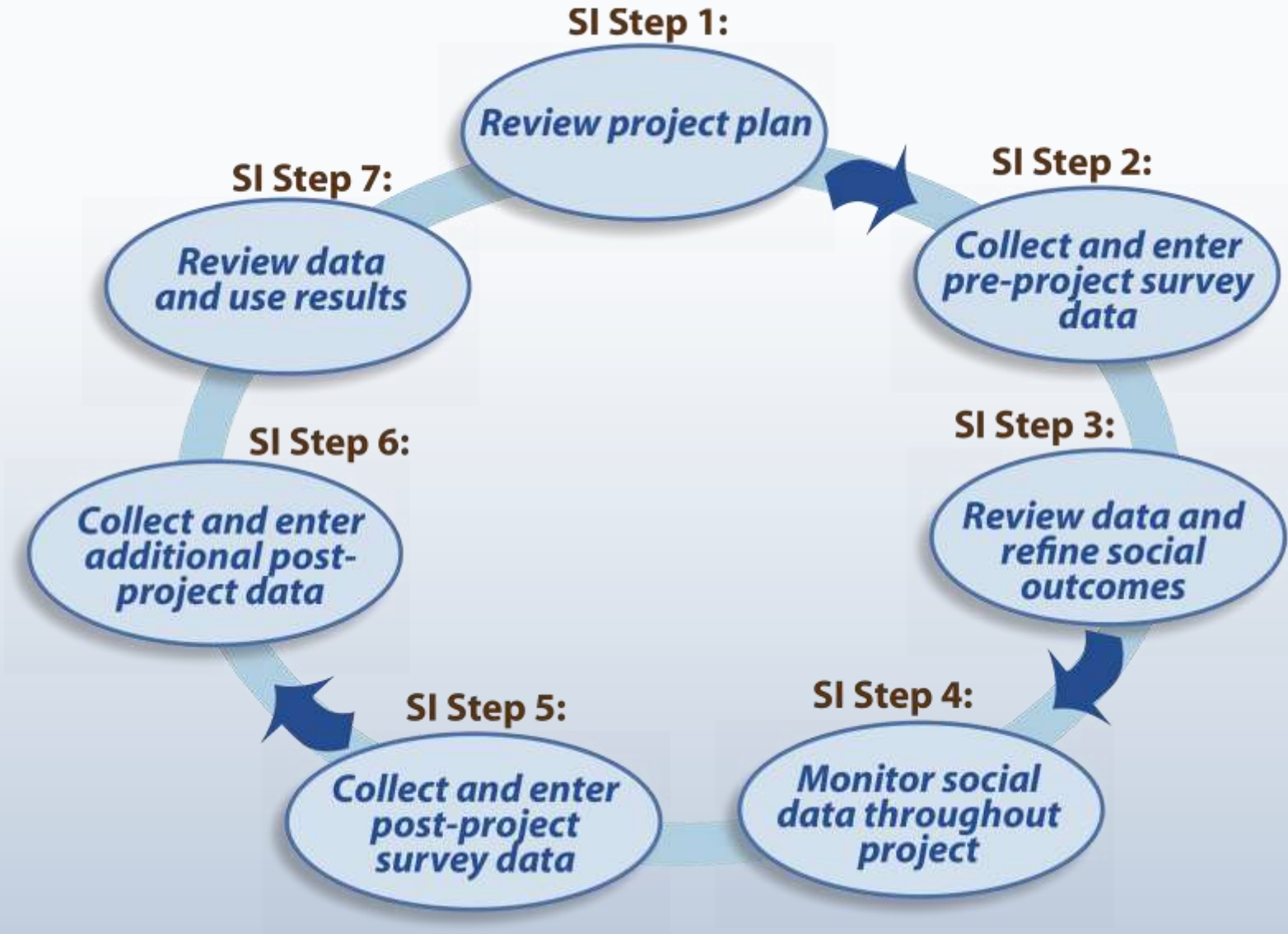
- 5 categories/goals, intended outcomes, indicators
- Additional contextual data
- supplemental indicators

Social Indicators for Planning & Evaluation System (SIPES)

- Critical areas & target audiences
- Scale is project level
- Applied to project planning
- Consistent survey questions and data collection methods
 - Used across projects
 - Compared over time



SI Planning and Evaluation Process



Awareness



Outcome: Increase target audience awareness of relevant technical issues and recommended practices in critical areas

- Awareness of consequences of pollutants
- Awareness of pollutant types
- Awareness of pollutant sources
- Awareness of appropriate practices
 - General practices
 - Key practices

Attitudes

Outcome: Change attitudes to facilitate desired behavior change in critical areas

- General water-quality-related attitudes
- Willingness to take action to improve water quality



General Water-Quality Related Attitudes

■ Constructs:

- Personal impact
- Value / importance of water quality
- Farm or household management impact
- Economics vs. water quality
- Personal action / responsibility



Constraints to Behavior Change

Outcome: Reduce constraints to behavior change

- General constraints to behavior change
- Constraints to adopting key practices

Example: Constraints

Cover crops.

Cover crops include grasses, legumes and forbs for seasonal cover and other conservation purposes.

<i>How much do the following factors limit your ability to use cover crops?</i>	Not at All	A little	Some	A lot	Don't Know
a. Don't know how to do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Time required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The features of my property make it difficult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Insufficient proof of water quality benefit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Desire to keep things the way they are	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Hard to use with my farming system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Behavior

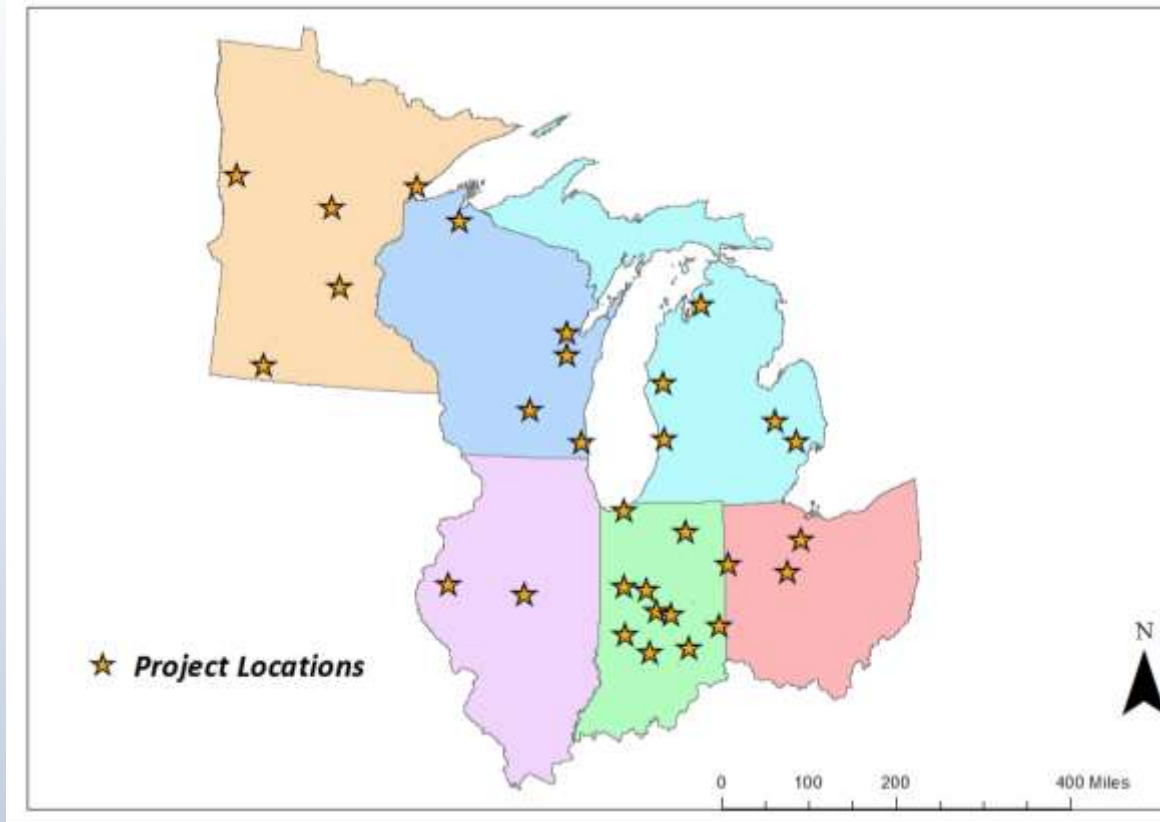
Outcome: Increase adoption of practices to maintain and improve water quality in critical areas

- Percentage of critical area receiving treatment
- Percentage of target audience implementing practices in critical areas
 - General practices
 - Key practices

Pilot Testing

Over 30 projects in six states

- Rural/urban
- Large/small
- Experienced/non-
- “319”/non-319



What's Novel in This Approach

- Consistent questions used before and after a project (and possibly mid project)
- Consistent questions used across projects in one region
- Surveys (when appropriate methodology) used rigorously and consistently
- SIDMA – Social Indicators Data Management and Analysis tool

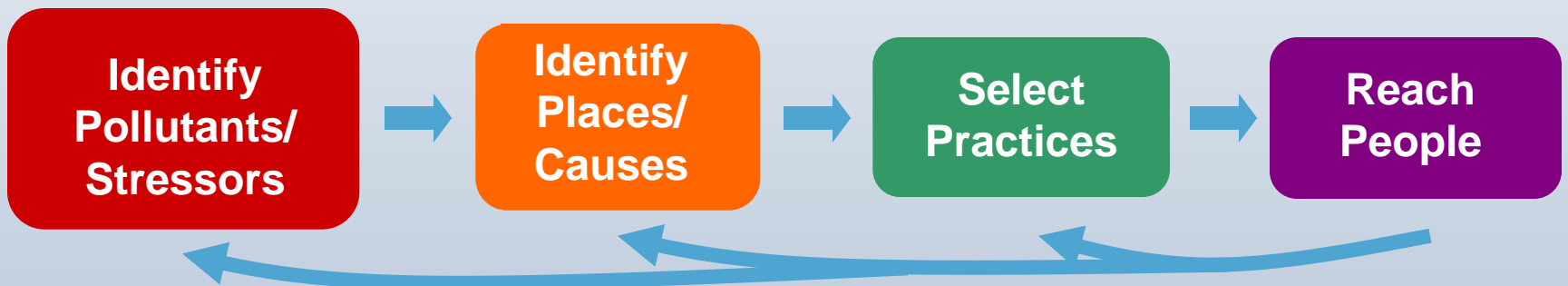
Intended Applications

- The system was developed to evaluate NPS projects, expanded for planning
- Survey is not the same as a social profile or information collected as part of a social marketing campaign

Part 2:
**Collecting and Using
Social Indicators Data**

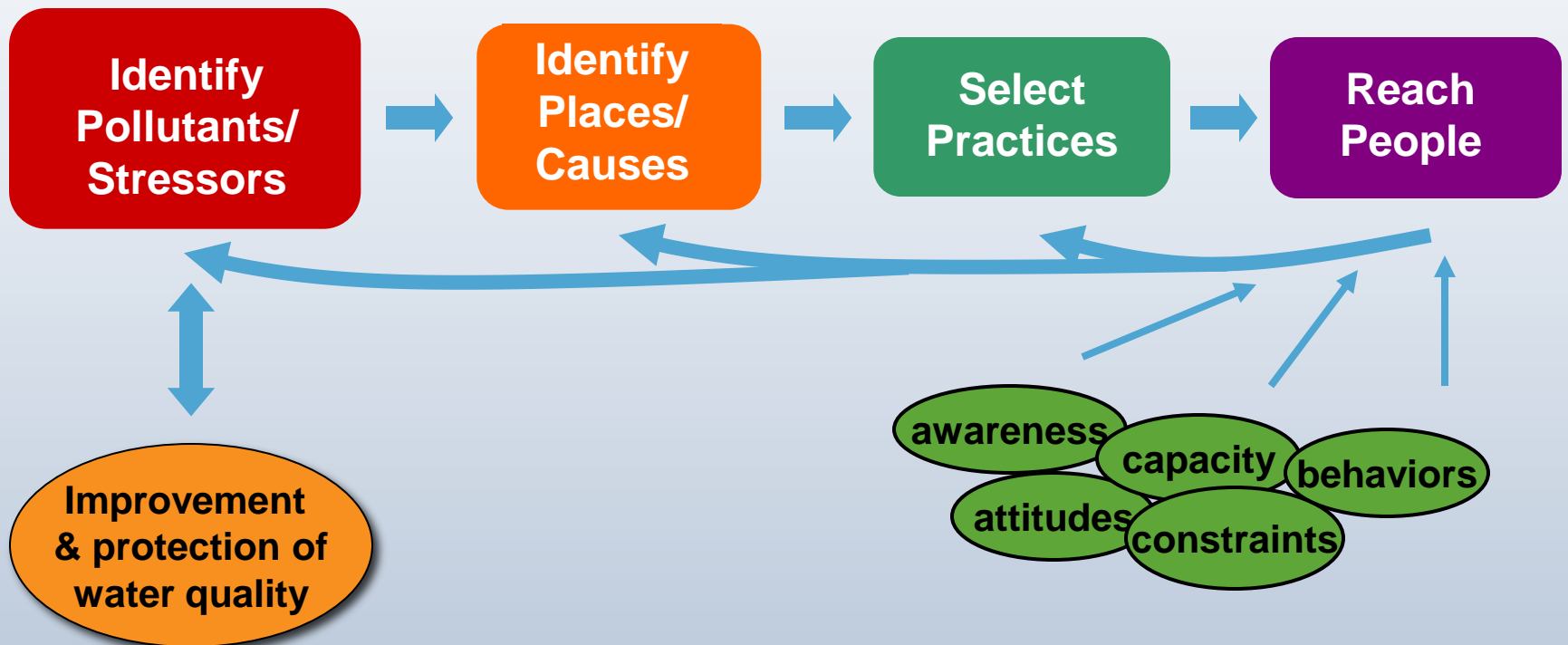
Using Social Indicators

- Clearly define environmental problems and the decision-makers ultimately responsible for solving them
- Clearly define linkages between environmental and social outcomes



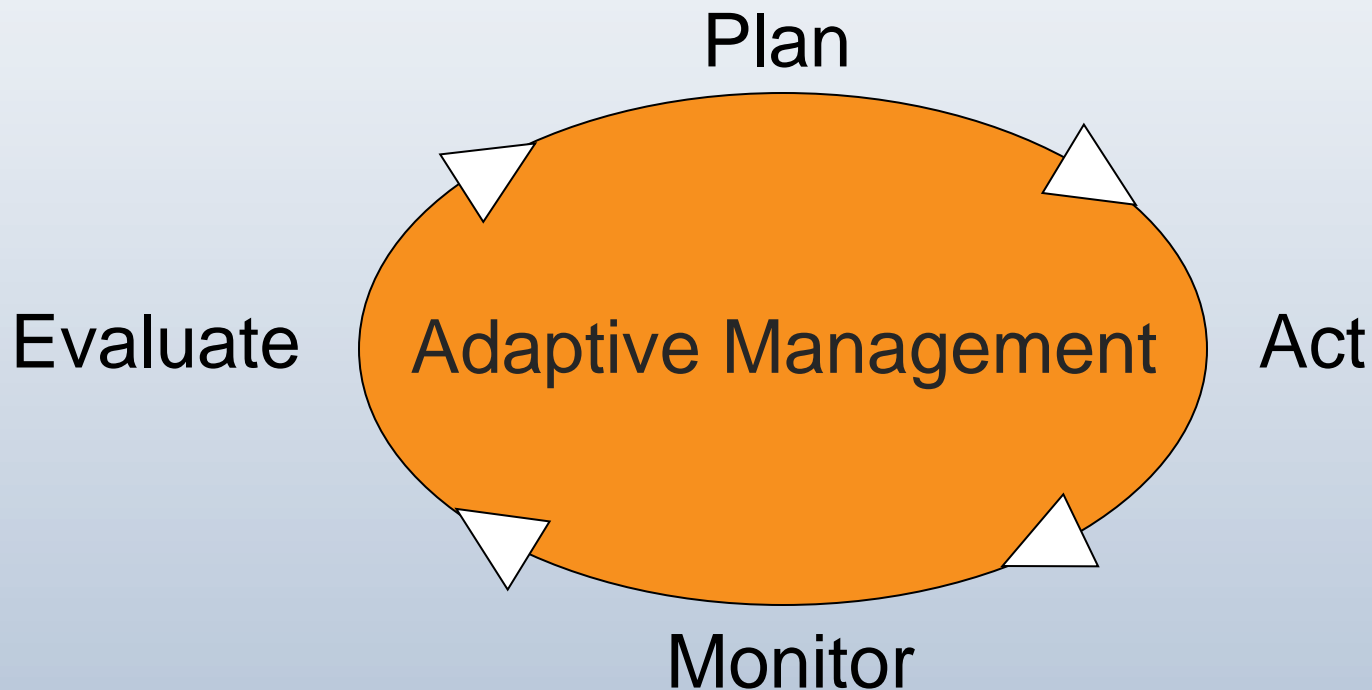
Using Social Indicators

- Identify social outcomes that will achieve project and watershed goals

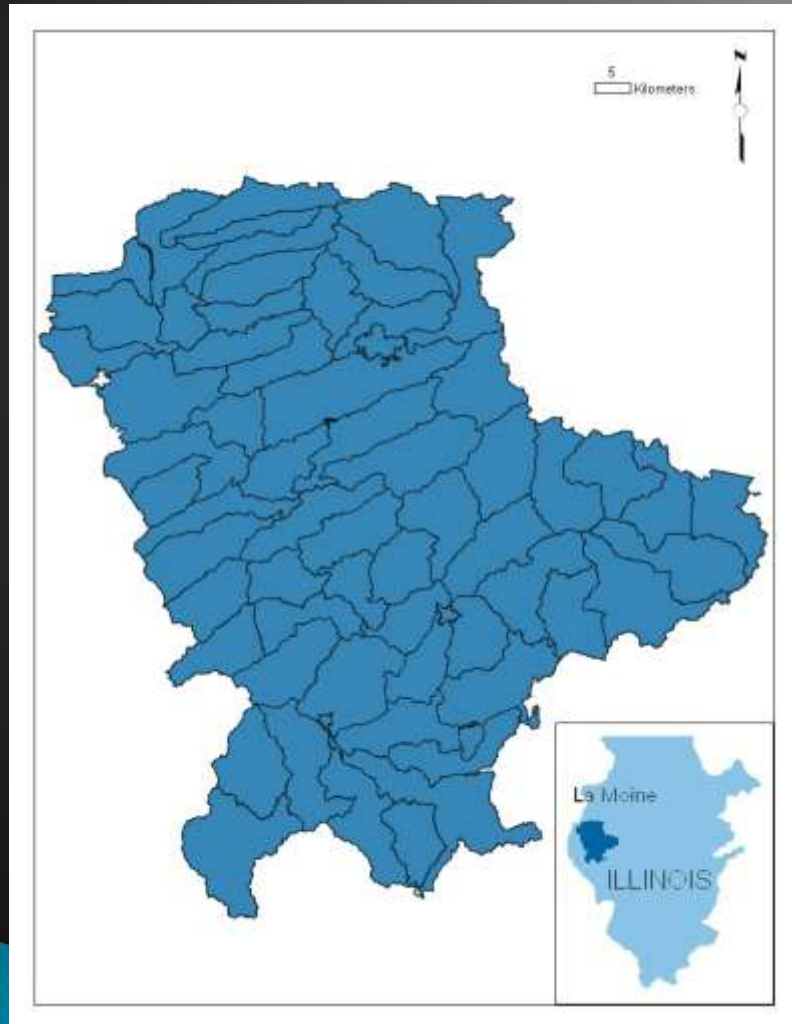


Using Social Indicators

- Monitor impacts of outreach activities
- Feed evaluation data back into decision-making processes



La Moine River Watershed



Surveyed agricultural producers

- ▶ To gather information on
 - Awareness
 - Attitudes
 - Behavior
 - Constraints

The image shows two pages of a survey form. The left page is titled "Your Views on the LaMoine River Watershed" and features a map of the watershed. The right page is titled "LaMoine River Watershed" and contains the survey questions and response options.

Your Views on the LaMoine River Watershed

LaMoine River Watershed

PLEASE READ BEFORE BEGINNING THIS SURVEY.

The survey must be completed by an adult resident of your household 18 years of age or older. Please mark all answers clearly in pen or pencil, or indicated below.

Example "1" Example "2"

Overall, how would you rate the quality of water in the LaMoine River Watershed?

	1	2	3	4	5
a. The drinking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The water for irrigation in the water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The swimming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The boating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. The fish habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. The overall beauty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Of the following, which best fits your definition of what a watershed is? Check the box that corresponds to your answer.

<input type="checkbox"/> An area that drains water like a swamp or a marsh
<input type="checkbox"/> The land area that drains into a specific water body
<input type="checkbox"/> Water under any land that feeds a water treatment plant
<input type="checkbox"/> A small building where water is stored
<input type="checkbox"/> None of the above
<input type="checkbox"/> I don't know

Do you know the name of your watershed?

<input type="checkbox"/> Yes, I know the name of my watershed. The name of my watershed is _____
<input type="checkbox"/> No, I don't know the name of my watershed.

How to work through survey data

▶ Part 1: Review Demographic and Adoption Data

- Does anything stand out about the demographic data from the survey that would influence an outreach and education plan?
- How many people are willing to adopt particular practices?
- What level of awareness is there about each practice?

a. Which of the following best describes where you live? (check only one)

In a town, village, or city

In a rural non-farm residence

On a farm

b. Which of the following best describe your position as a farm operator? (Check all that apply)

Farm owned acreage

Farm cash-rented acreage

Farm share-tenancy acreage (e.g. 50/50)

Lease owned acreage

Lease share-tenancy acreage

Other _____ (specify)

Working through survey data

- ▶ Part 2: Review Awareness, Attitudes, and Constraints Data
 - What interesting patterns do you see?
 - What constraints and awareness issues might need to be addressed for behavior to change?
 - What attitudes can you take advantage of in crafting your outreach message?

When you make decisions about new management practices for your farm operations, *how important is each of the following?*

	Not at all important	Somewhat important	Undecided	Important	Very important
a. Personal out-of-pocket expense	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. My own views about effective farming or land management methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. How easily a new practice fits with my current farming methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The need to learn new skills or methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Working through survey data

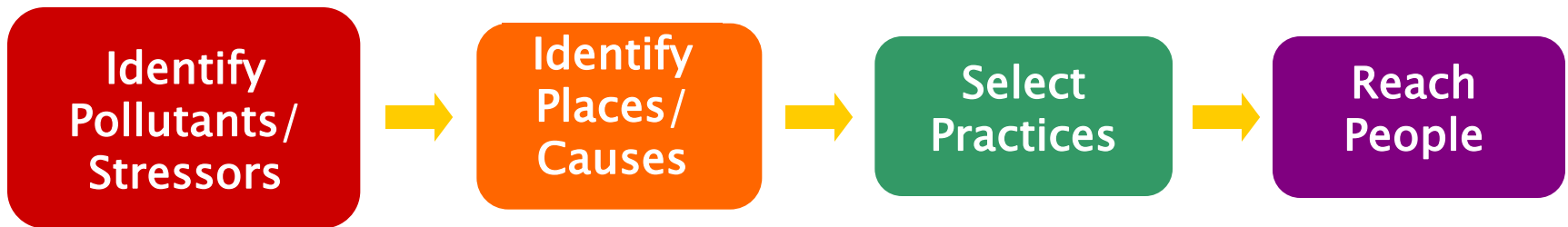
- ▶ Part 3: Developing a Message
 - Outcomes– start with destination in mind!
 - Think about outcomes in terms of changes in awareness, attitudes, constraints, behaviors
 - Messages
 - What messages will be effective at reaching members of the target audience?
 - Message delivery
 - Who should deliver the message?
 - How should it be delivered?

Observations from La Moine data

- ▶ Lack of understanding of problems
- ▶ Need for money to implement BMPs
- ▶ They have a better relationship with local government than state/national, i.e. like SWCD don't trust EPA
- ▶ People are concerned about high drinking water treatment costs
- ▶ Farmers seem to really care about environment
- ▶ Need a “we all live downstream” message

Using Social Indicators

- ▶ Clearly define environmental problems and the decision-makers ultimately responsible for solving them
- ▶ Clearly define linkages between environmental and social outcomes



The 4 P's for La Moine

▶ Pollutants to focus on

- Sediment
- Nutrients
- Fecal Coliform or E.coli

▶ People

- Mix of owning and renting
- Lots of smaller operators
- Older people are making most of the decisions right now

▶ Practices

- Managing tile drainage
- Keeping livestock out of waterways
- Cover crops
- Nutrient Management

▶ Places

- The subwatersheds selected for this study

Example– Keeping livestock out of the streams

Outcomes:

- Keep livestock out of stream
- Change attitudes (people don't want to change what they've been doing for years)
- Increase awareness of benefits:
 - aesthetics
 - soil erosion
 - water quality




Conclusions for messaging

- ▶ Try 5 different types of messages:
 - This is the traditional way
 - This is easy
 - Be a good steward
 - Herd health
 - Use humor and exaggerate their concerns



Message Delivery

- ▶ **One-on-one conversations**
 - “tell me what your fears are”
 - ▶ **Pasture walk**
 - to appeal to aesthetics
 - ▶ **Newsletters/factsheets**
- 

Field Days

- ▶ Collaborated on a crop field day
- ▶ Held an 'Improved livestock management practices' field day



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
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Glenn O'Neill, Michigan State
Rebecca Power, UW-Extension
David White, Univ of Illinois
Danielle Wood, Univ of Wisconsin

<http://www.uwex.edu/ces/regionalwaterquality/>

Or search: “Social indicators for NPS”