The Value of Maintaining Watershed Health

Understanding Public Perceptions: A Social Assessment of the Nippersink Watershed

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Photo Credit: Ray Mathis

A Social Assessment of the Nippersink Watershed: Maintaining What We Value

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Project Partners

Illinois Environmental Protection Agency

Illinois State University
Illinois' first public university

The Nippersink Watershed Association

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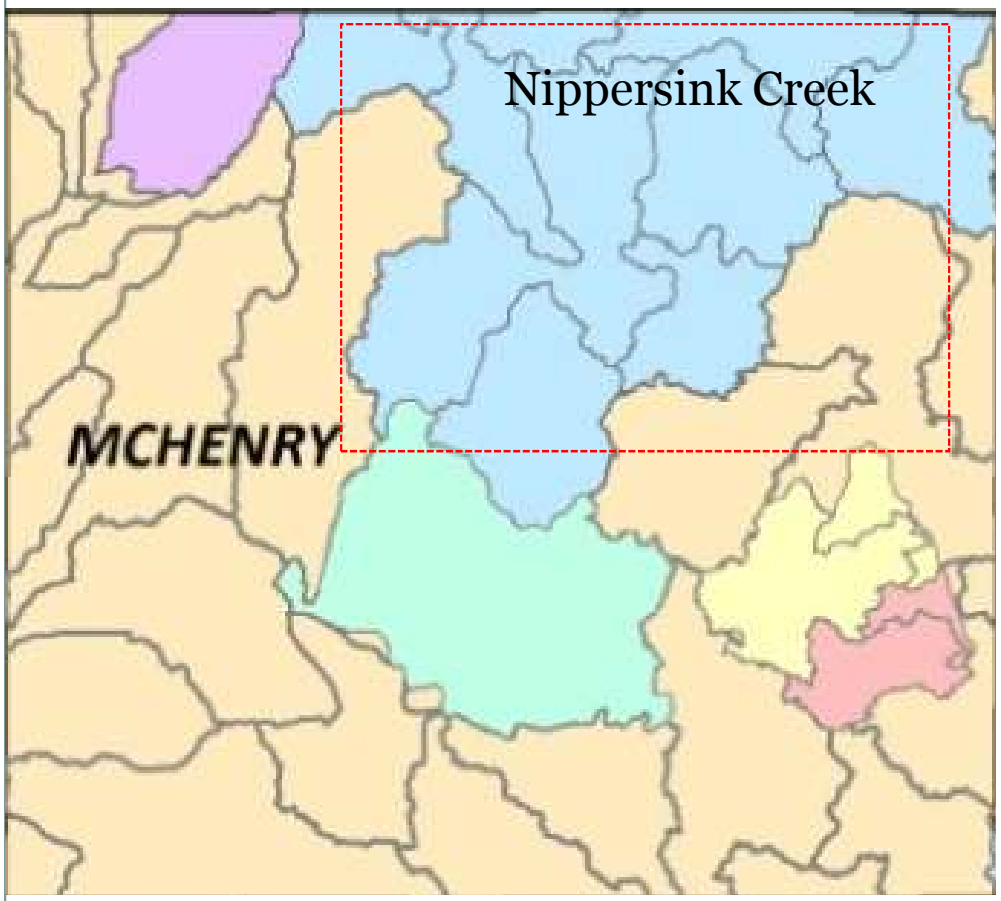
319 Grant Program

McHenry County Watershed Plans



- Blackberry Creek-Beginning Fall 2010
- Silver Creek- Beginning Fall 2010
- Sleepy Hollow Creek-Beginning Fall 2010
- Lower DuPage-In Progress
- Hickory Creek-In Progress
- Jackson Creek
- Upper Kishwaukee
- Beaver Creek
- Lawrence Creek
- Completed Watershed Plans

Why Are the Human Dimensions So Important? The Nature of Watershed Based Planning & Actions

- The political ecology of watersheds
  - Governance
  - Overlapping statutory and regulatory jurisdictions
- The diverse sources of non-point source pollution
- Stakeholders are the primary agents of change
- Each watershed is unique
- To be successful in the long term watershed plans must affect place identity and culture

Watershed Planning: Why Social Science?

Effective management of Nonpoint Source (NPS) water pollution requires addressing both environmental conditions and the choices people make that impact the environment.

- Improving water quality by changing behavior necessitates influencing people's awareness, skills, attitudes, capacity, or constraints related to water quality improvement
- Monitoring social indicators facilitates evaluation
- Successful watershed planning involves community building

Nippersink Creek Watershed Social Assessment Background

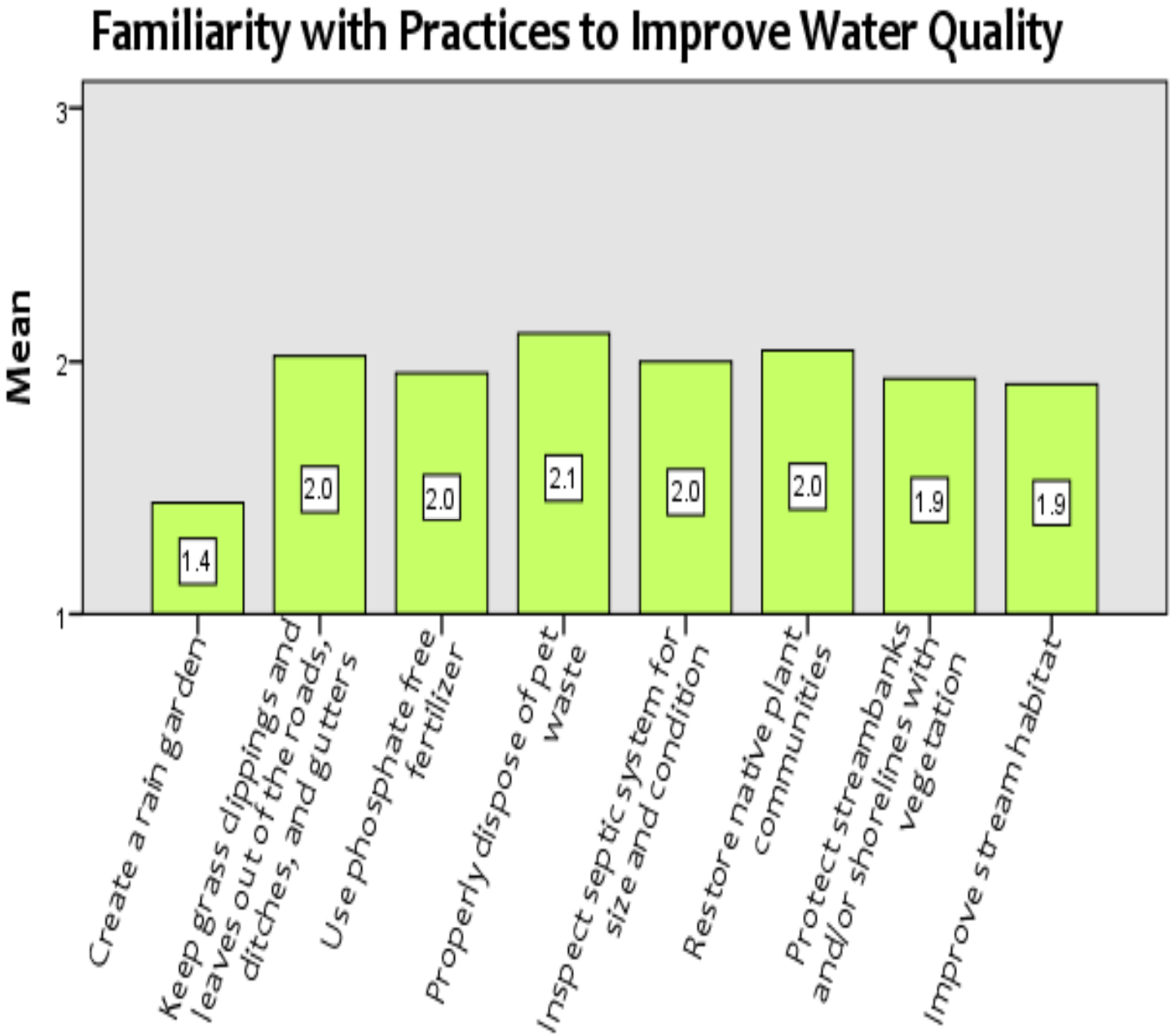
- Water Quality
- Watershed pollution
- Changes in the watershed
- Goal of the Survey
  - Evaluate understanding of watershed issues
  - Document knowledge and current behaviors
  - Assess support for Plan recommendations
  - Identify outreach opportunities

Research Methods

- Survey Design
  - Interviews with key informants helped to develop and design survey questions.
  - Self-administered mail questionnaire
  - EPA pilot project – SIPES
- Sampling
  - Four subwatersheds: Wonder Lake, Lower Nippersink, Nippersink Headwaters, and Silver Creek
  - 2,400 eligible households in sample; Census blocks
  - Response Rate: 25.3%

Respondent Demographics

- College education: 79% have at least some college
- Median age: 57 years
- Property ownership: 94% own their property
- Median length of residence: 14 years
- Lawn care use: 23% of respondents use a professional lawn service


Familiarity with Practices to Improve Water Quality
Mean
3
2
1
1.4
2.0
2.0
2.1
2.0
2.0
1.9
1.9
Create a rain garden
Keep grass clippings and leaves out of the roads, ditches, and gutters
Use phosphate free fertilizer
Properly dispose of pet waste
Inspect septic system for size and condition
Restore native plant communities
Protect streambanks and/or shorelines with vegetation
Improve stream habitat

Use of BMP Practices on Personal Property

- Most commonly used practices to improve water quality:
  - Properly disposing of pet waste (60.4%), keeping roads and gutters free of grass (65.8%), septic system inspection (52.9%)
- Least commonly used practices:
  - Creating a rain garden (95% do not currently use this practice)
- Residents practice what they are most familiar with.

Factors Influencing Changes in Lawn Care and/or Storm water Practices on Own Property

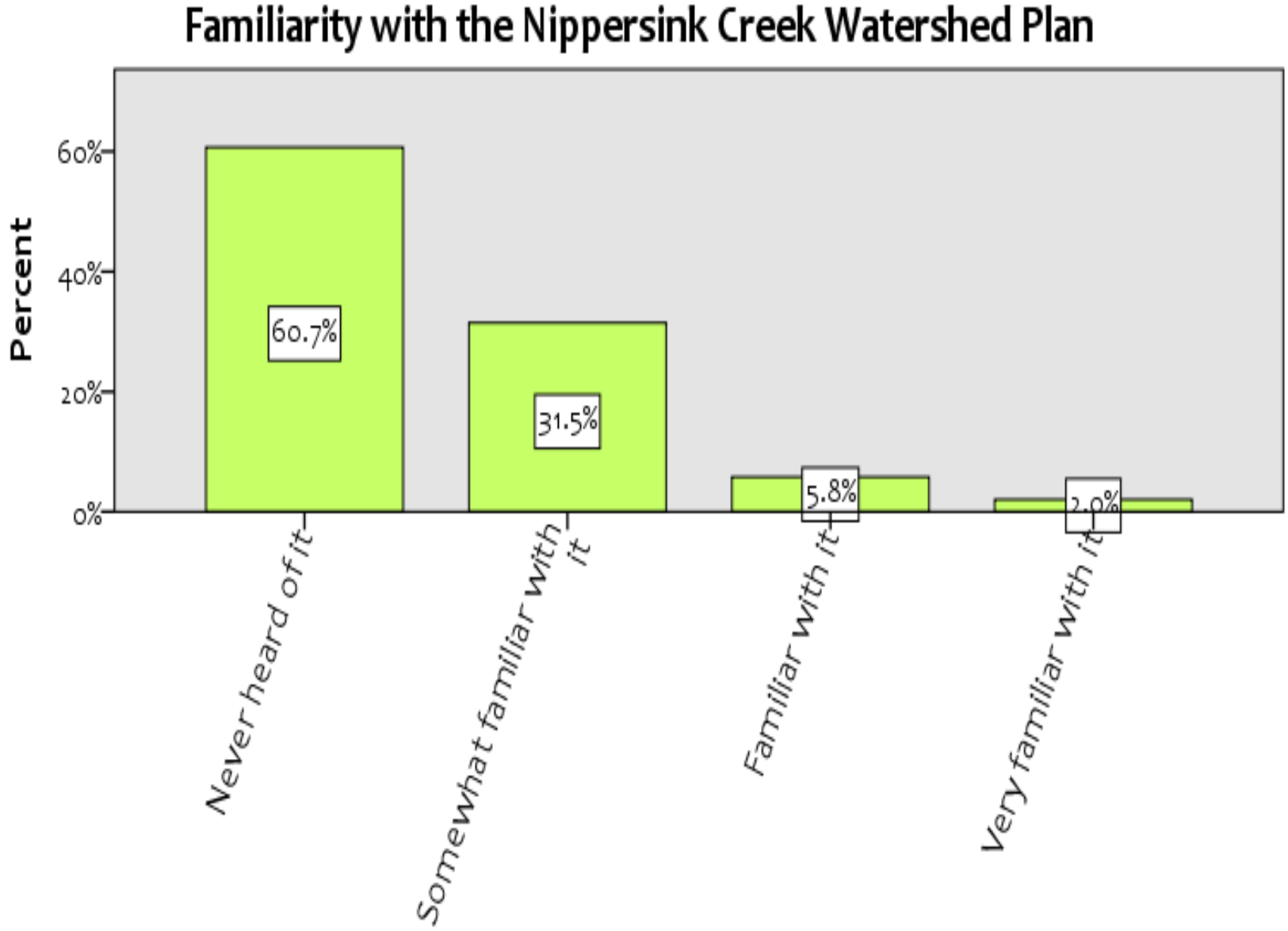
- Greatest Limiting Factors (A Lot):
  - To Much Time Required for Implementation (42.3%)
  - The Need to Learn New Skils or Techniques (31.6%)
  - Lack of Available Information About a Practice (30.2 %)
- Least Limiting Factors (Not At All):
  - Restrictive subdivision covenants (50.7%)
  - No One Else I Know is Implementing The Practice (42.9.%)

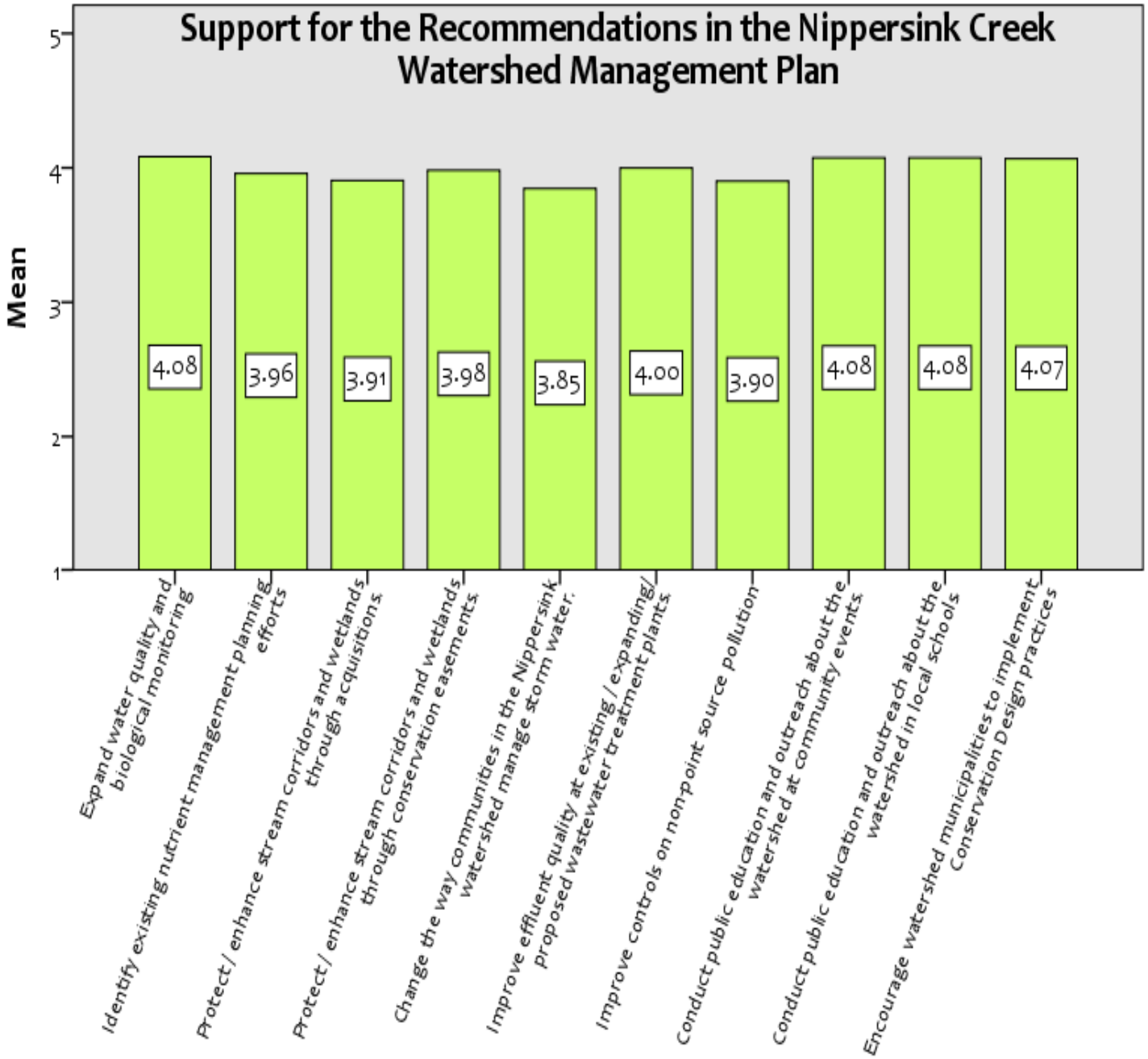
Septic Systems

- Septic system ownership
  - 60% of respondents own a septic system
- Septic system problems
  - 13% of respondents have had some kind of problem with their septic system
- Maintenance reminders
  - An overwhelming majority (79%) of respondents do not want a service reminder from the public health department

What Do Respondents Value?

- Opinions and Beliefs Regarding Water Quality
  - Respondents agreed/strongly agreed that the way they care for their lawn and yard can influence local water quality (86.8%)
  - Respondents agreed/strongly agreed that their actions have an impact on water quality (88.4%)
  - Respondents disagreed/strongly disagreed with statements such as “It is okay to reduce water quality to promote economic development” (86.7%)


Familiarity with the Nippersink Creek Watershed Plan
Percent
60%
40%
20%
0%
60.7%
31.5%
5.8%
2.0%
Never heard of it
Somewhat familiar with it
Familiar with it
Very familiar with it


Support for the Recommendations in the Nippersink Creek Watershed Management Plan
Mean
5
4
3
2
1
4.08
3.96
3.91
3.98
3.85
4.00
3.90
4.08
4.08
4.07
Expand water quality and biological monitoring
Identify existing nutrient management planning efforts
Protect/enhance stream corridors and wetlands through acquisitions
Protect/enhance stream corridors and wetlands through conservation easements
Change the way communities in the Nippersink watershed manage storm water.
Improve effluent quality at existing/expanding/proposed wastewater treatment plants
Improve controls on nonpoint source pollution
Conduct public education and outreach about the watershed at community events
Conduct public education and outreach about the watershed in local schools
Encourage watershed municipalities to implement Conservation Design practices

Conclusions

- Respondents demonstrate respectable level of knowledge about water quality issues and threats within the watershed.
- Respondents see a connection between their actions, water quality, and quality of life in their community.
- 60% of respondents were not aware of watershed management plan.
- However, strong support for recommendations in the watershed plan among respondents, regardless of knowledge about the watershed management plan.

Community-Based Social Marketing

- Education alone often has little or no effect on changing people's behaviors, in particular as it relates to sustainability issues such as water quality or watershed health (Geller 1981; Geller, Erickson, and Buttram 1983; Jordan, Hungerford, and Tomera 1986).
- Community-based social marketing addresses this shortcoming by first identifying barriers to a sustainable behavior and then designing a strategy that utilizes behavior change tools (McKenzie-Mohr 2010).

Community-Based Social Marketing Outreach

- May be beneficial to partner with local, private septic system providers within the watershed to develop a social marketing plan to provide routine reminders about servicing septic systems.
- "Septic Social" events targeted at smaller neighborhoods or clusters of homes with high percentage of septic systems.

What is a Septic System?

A **septic system** is a sewage treatment and disposal system buried in the ground. It is composed of a **septic tank** and a **leach field** or trench.

Household sewage (**wastewater** from sinks, toilets, showers, washing machines, garbage disposals and dishwashers) generally flows by gravity into the septic tank. There, heavier particles settle to the bottom and scum rises to the top. Bacteria in the tank help break down some of the solids. But septic systems can fail due to poor design or construction, to overloading or to inadequate maintenance.

Bee Wise....We All Live Downstream!

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DO Checklist

- **Do Inspect** your tank for signs of sludge buildup and make sure the baffles are in working order.
- **Do Pump** your tank as needed (every 3-5 years), and keep a written record for yourself or future owner.
- **Do Compost** food garbage or put it in the trash.
- **Do Keep a grease can** handy.
- **Do Mark** your septic system so you can protect it from vehicles and encroaching trees and shrubs.
- **Do Conserve** water: install water-saving devices, such as front-loading washers and low-flow faucets and shower heads.
- **Do Use non-toxic cleaning products** such as baking soda to scrub toilets, or boiling water to clear drains.
- **Do Contact** a site evaluator if your septic system shows signs of failure; **contact** your local plumbing inspector if you see evidence of other malfunctioning septic systems.
- **Do Plant** shrubs, trees and grasses downhill from your system to act as a sponge. Keep small trees and shrubs at least 10' away from your leach field and large trees at least 20' away.
- **Do spread out** your laundry loads to even out your water use and to avoid flushing your system.

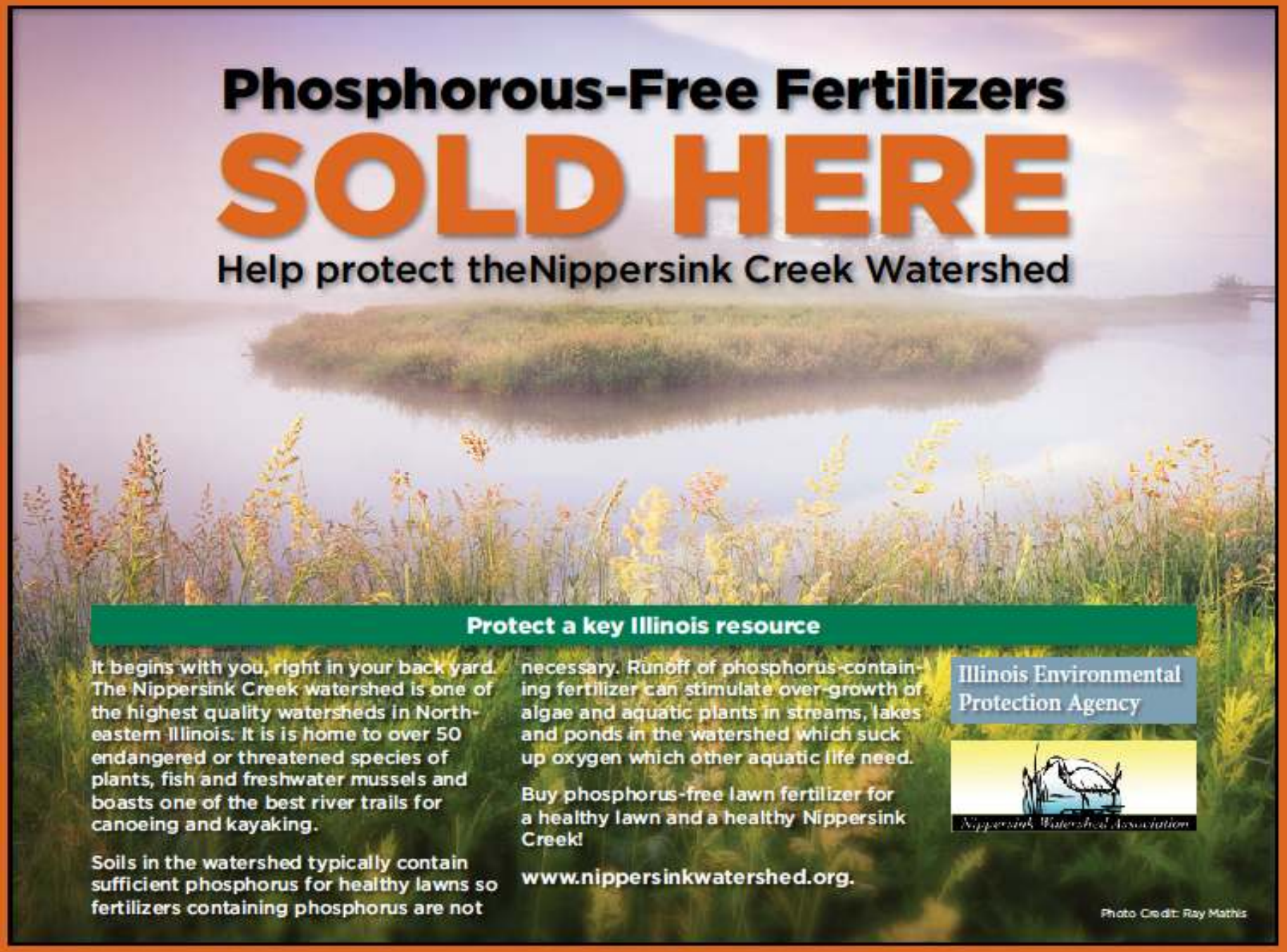
DON'T Checklist

- **Don't use a garbage disposal**—it adds 50% more solids to your system.
- **Don't pour** automotive oil, cooking oil or grease down the drain.
- **Don't drive** vehicles over the septic system or leach field.
- **Don't plant** bushes or trees over the leach field.
- **Don't use too much water**, especially during rainy, wet seasons when the ground is saturated.
- **Don't pour** paint or paint thinner down the drain.
- **Don't use drain cleaners** and other toxic chemical products.
- **Don't use chemical or biological septic system cleaners**, which can plug up the leach fields and ruin your system.
- **Don't flush** feminine hygiene products, cat litter, disposable diapers or other non-biodegradable products into your system.
- **Don't flush medicines**, particularly antibiotics.
- **Don't use** products labeled "antibacterial."

For more information on the Nippersink Creek Watershed Management Plan, visit: www.nippersink.org

Additional Outreach

- Considerable room for further dissemination of the Watershed Management Plan and its recommendations.
- As knowledge of the plan increases, use of various BMP practices to improve water quality also increases (ie: proper use of lawn fertilizers).
- Opportunity to collaborate with other organizations that promote broader watershed health or water quality (ie: McHenry County Conservation District; Environmental Defenders of McHenry County; local schools and science teachers)


Phosphorous-Free Fertilizers
SOLD HERE
Help protect theNippersink Creek Watershed
Protect a key Illinois resource
It begins with you, right in your back yard. The Nippersink Creek watershed is one of the highest quality watersheds in Northeastern Illinois. It is is home to over 50 endangered or threatened species of plants, fish and freshwater mussels and boasts one of the best river trails for canoeing and kayaking.
Soils in the watershed typically contain sufficient phosphorus for healthy lawns so fertilizers containing phosphorus are not necessary. Runoff of phosphorus-containing fertilizer can stimulate over-growth of algae and aquatic plants in streams, lakes and ponds in the watershed which suck up oxygen which other aquatic life need.
Buy phosphorus-free lawn fertilizer for a healthy lawn and a healthy Nippersink Creek!
www.nippersinkwatershed.org.
Illinois Environmental Protection Agency
Nippersink Watershed Association
Photo Credit: Ray Mathis

Ways to Engage and Involve Stakeholders Identified by the EPA

- ***At Home***
  - Reading brochures
  - Visiting a Web site
  - Completing a survey
  - Adopting practices that conserve water and protect water quality
  - Reviewing documents
- ***Out in the Community***
  - Managing practice tours and watershed fairs
  - Conducting coffee shop discussions
  - Making educational presentations
- ***Action-oriented Activities***
  - Stenciling, stormdraining
  - Monitoring volunteer work
  - Stream cleanup

A critical issue in the success of these efforts is the underlying structure and thinking guiding <u>how</u> these activities occur.

Final Thoughts

- Overall respondents have a strong sense of their watershed and water quality.
- Respondents recognize the significance to their overall quality of life.
- Important baseline information on barriers to specific BMP actions – helpful for the development of tailored actions to influence behavior.
- Develop and direct these tools at the community level to have the greatest impact.
- Applied for Phase 2 funding from ILEPA 319 Program
  - Continue with outreach/education activities identified here, plus additional opportunities
  - Second household survey to assess change in activities/behaviors over time

For More Information

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- Randy Stowe, Nippersink Creek Watershed Manager
  - rjstowe@gmail.com
- Nippersink Creek Watershed website (full Executive Summary Report available as PDF file)
  - http://www.nippersink.org/