Maintaining What We Value

Results of A Survey to Guide The Nippersink Creek Watershed Management Plan

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The Nippersink Watershed Association

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Introduction

• Location of the Nippersink Creek Watershed
• 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 and Addressing Non-Response

- Response Rate: 25.3%
- Non-Respondent Bias
  - Non-respondent phone survey (300 households)
    - Did not include Wonder Lake residents due to lack of phone numbers
- Data Comparisons to Address Non-Response Bias
  - McHenry County ACS data
  - Non-respondent survey data
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Response of Respondents</th>
<th>Mean Response of Non-respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Quality: Canoeing, Kayaking, Other Boating</td>
<td>2.45</td>
<td>2.50</td>
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<tr>
<td>Water Quality: Eating Fish</td>
<td>1.88</td>
<td>2.04</td>
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<tr>
<td>Water Quality: Swimming</td>
<td>1.85</td>
<td>2.00</td>
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<tr>
<td>Water Quality: Picnicking</td>
<td>2.54</td>
<td>2.54</td>
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<tr>
<td>Water Quality: Fishing</td>
<td>2.27</td>
<td>2.47</td>
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<tr>
<td><strong>Water Quality: Scenic Beauty</strong></td>
<td><strong>2.59</strong>*</td>
<td><strong>2.85</strong>*</td>
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<tr>
<td>My lawn and yard care can influence water quality</td>
<td>4.17</td>
<td>4.07</td>
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<td>It is my responsibility to protect water quality</td>
<td>4.24</td>
<td>4.11</td>
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<tr>
<td>My actions have an impact on water quality</td>
<td>4.13</td>
<td>4.24</td>
</tr>
<tr>
<td><strong>Quality of life in community depends on good water quality</strong></td>
<td><strong>3.99</strong>*</td>
<td><strong>4.27</strong>*</td>
</tr>
<tr>
<td>Familiarity with the Nippersink Creek Watershed Plan</td>
<td>1.46</td>
<td>1.52</td>
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<tr>
<td><strong>Expand water quality and biological monitoring</strong></td>
<td><strong>4.08</strong>*</td>
<td><strong>3.82</strong>*</td>
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<tr>
<td>Protect/enhance stream corridors</td>
<td>3.98</td>
<td>4.02</td>
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<td>Change the way storm water is managed</td>
<td>3.82</td>
<td>3.69</td>
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<td><strong>Gender</strong></td>
<td><strong>1.32</strong>*</td>
<td><strong>1.25</strong>*</td>
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<td>Year Born</td>
<td>2.84</td>
<td>2.89</td>
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<td>Highest Education Level</td>
<td>4.00</td>
<td>3.87</td>
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<tr>
<td>Total Household Income</td>
<td>3.42</td>
<td>3.24</td>
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</tbody>
</table>
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
Perceptions of Water Impairments

- Excess dirt and soil in water: 2.9
- Excess nitrogen: 2.9
- Excess phosphorus: 3.0
- Bacteria and viruses in the water (such as E. coli / coliform): 2.9
- Trash or debris in the water: 2.9
- Excess algae in the water: 2.9
- Invasive aquatic plants and animals: 2.9
- Habitat alteration affecting fish negatively: 2.9
What do We Know and Practice?

• 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.
Familiarity with Practices to Improve Water Quality

- Create a rain garden: 1.4
- Keep grass clippings and leaves out of the roads, ditches, and gutters: 2.0
- Use phosphate free fertilizer: 2.0
- Properly dispose of pet waste: 2.1
- Inspect septic system for size and condition: 2.0
- Restore native plant communities: 2.0
- Protect streambanks and/or shorelines with vegetation: 1.9
- Improve stream habitat: 1.9
Decisions About Changing Lawn Care and/or Storm Water Practices on Residents’ Property

- Greatest Limiting Factors (A Lot):
  - To Much Time Required for Implementation (42.3%)
  - The Need to Learn New Skills 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%)
Constraints for Specific Practices

• Follow Pesticide Application Instructions for Lawn and Garden
  – The majority of respondents (56%) follow application instructions
  – 68% of respondents are familiar with pesticide application instructions
  – 86% are willing to follow, or already use, application instructions
  – Perceived constraints: cost and a desire to keep things the same.
Constraints for Specific Practices cont’d

• Regular Servicing of Septic System
  – The majority of respondents (86%) service their septic systems
  – 80% are familiar with septic system servicing
  – 91% are willing to practice, or already practice, septic maintenance
  – Perceived constraints: cost and a desire to keep things the same.
Constraints for Specific Practices cont’d

• Protecting Stream banks and Shorelines with Vegetation
  – 42% do not follow the practice, while 37% currently protect shorelines
  – 48% are “somewhat familiar” with protecting shorelines; 23% had never heard of it
  – 66% are willing to protect stream banks

• Perceived constraints: cost, the features of their property, and the skills and information needed to practice.
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 Residents 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 Management Plan

- 60.7% Never heard of it
- 31.5% Somewhat familiar with it
- 5.8% Familiar with it
- 2.0% Very familiar with it
Support for the Recommendations in the Nippersink Creek Watershed Management Plan

- Expand water quality and biological monitoring: 4.08
- Protect/Enhance stream corridors and wetlands through acquisitions: 3.96
- Protect/Enhance stream corridors and wetlands through conservation easements: 3.91
- Change the way communities in the Nippersink watershed manage storm water: 3.98
- Improve efficiency at existing/expand wastewater treatment plants: 3.85
- Conduct public education and outreach about the watershed at community events: 4.00
- Conduct public education and outreach about the watershed in local schools: 3.90
- Encourage municipalities to implement conservation design practices: 4.08
- Improve control on non-point source pollution: 4.07
Support for Recommendations in the Nippersink Creek Watershed Management Plan

• The most supported recommendations are expanding water quality and biological monitoring and public education in schools and at community events
• Recommendations are supported strongly and consistently
• Most of the recommendations are supported regardless of knowledge of the Plan
Regression Analysis

- Respondent Opinions
  - Education and age most constant predictors
- Practices to Improve Water Quality
  - Plan familiarity, education, use of lawn care service
- Making Decisions for My Property
  - Income, household decision-maker
- Nippersink Creek Plan Recommendations
  - Education is the most constant predictor of support
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.

• Strong support for recommendations in the watershed plan among respondents.

• However, 60% of respondents were not aware of watershed management plan.
Conclusions

- Majority of respondents reported having a septic system.
- Significant presences of septic systems in four sub-watersheds and high levels of concern for bacteria and viruses in water.
- Respondents overwhelmingly opposed to receiving a reminder from the public health department regarding servicing their system.
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 (i.e.: proper use of lawn fertilizers).

• Opportunity to collaborate with other organizations that promote broader watershed health or water quality (i.e.: McHenry County Conservation District; Environmental Defenders of McHenry County; local schools and science teachers)
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.
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.
For More Information

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