

ERCOL Social Indicators Study

Watershed Residents

Survey Report

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Survey distribution summary

Survey dates: October – December 2017

Surveys sent: 965

Undeliverable: 33

Deliverable addresses: 932

Responses: 233 (25%)

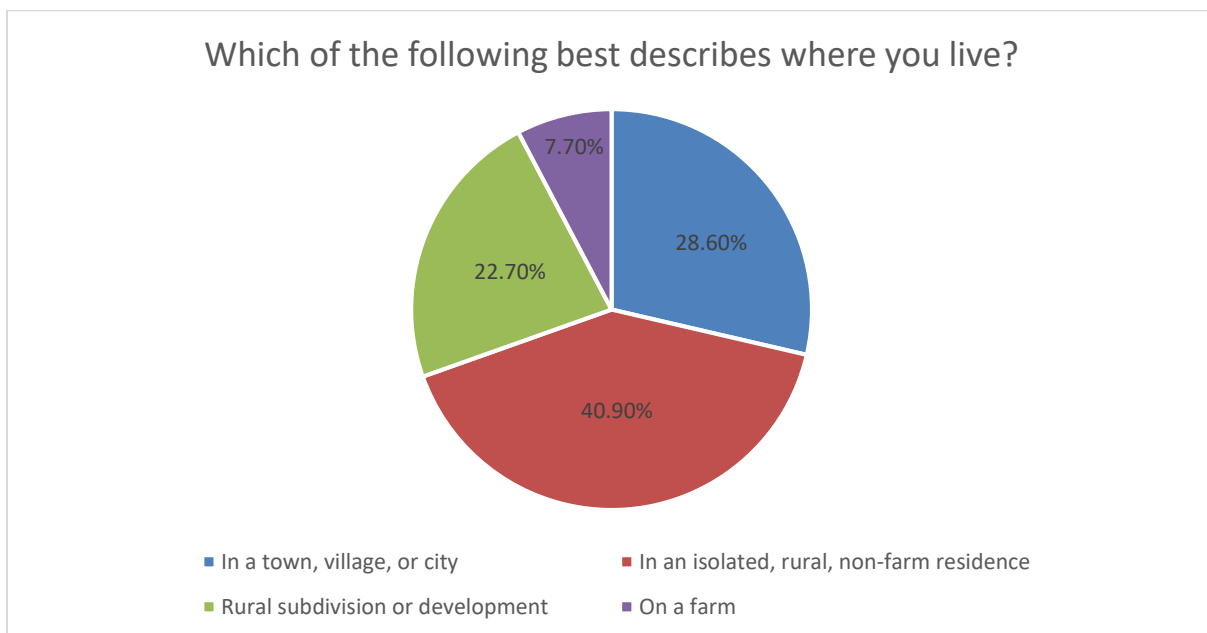
Key Findings from the Elk River Chain of Lakes Watershed Residents Survey

Tip of the Mitt Watershed Council conducted a series of three surveys in the Elk River Chain of Lakes (ERCOL) Watershed during 2017-2019 with watershed residents, shoreline property owners, and local officials. These were done to identify the needs and concerns regarding the water quality of the lakes in the Chain. The results will help guide the direction of future education efforts to protect the water quality of the Watershed.

Below are the key findings of the survey of watershed residents.

WHO RESPONDED?

Blank surveys were sent to 932 residents in the Chain of Lakes. The majority of the 233 responses came from homeowners, with less than 1% responding that they are renters. The majority lived in an isolated, rural, non-farm residence, followed by those who lived in a town, village, or city. 96% noted that they are the home and lawn care decision makers in their household, and 66% were male, 34% female. Most respondents were in the age range of mid-50s to mid-70s.



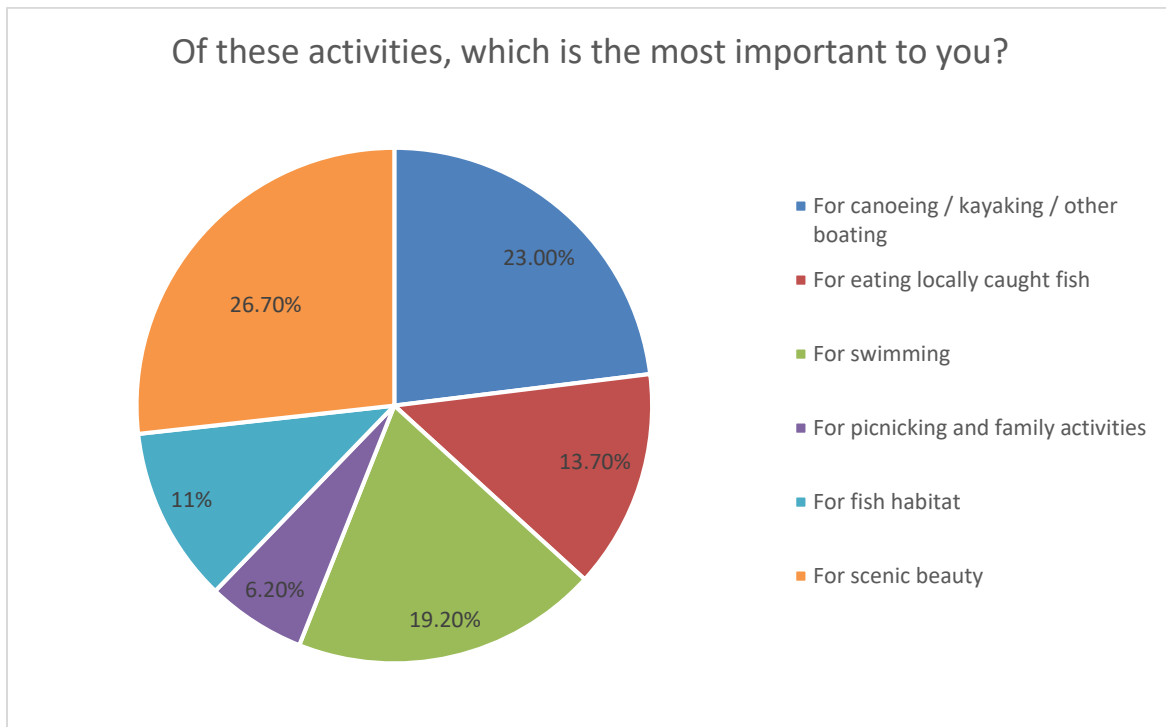
RESULTS

We will review topline results, first. In all three surveys, watershed residents, shoreline property owners, and local officials all believe the following:

- ✓ Quality of our water is “good”
- ✓ There are few Watershed impairments
- ✓ Economic stability depends on good water quality
- ✓ Not okay to reduce water quality to promote economic development
- ✓ Quality of life in their community depends on good water quality – lakes, rivers, and streams

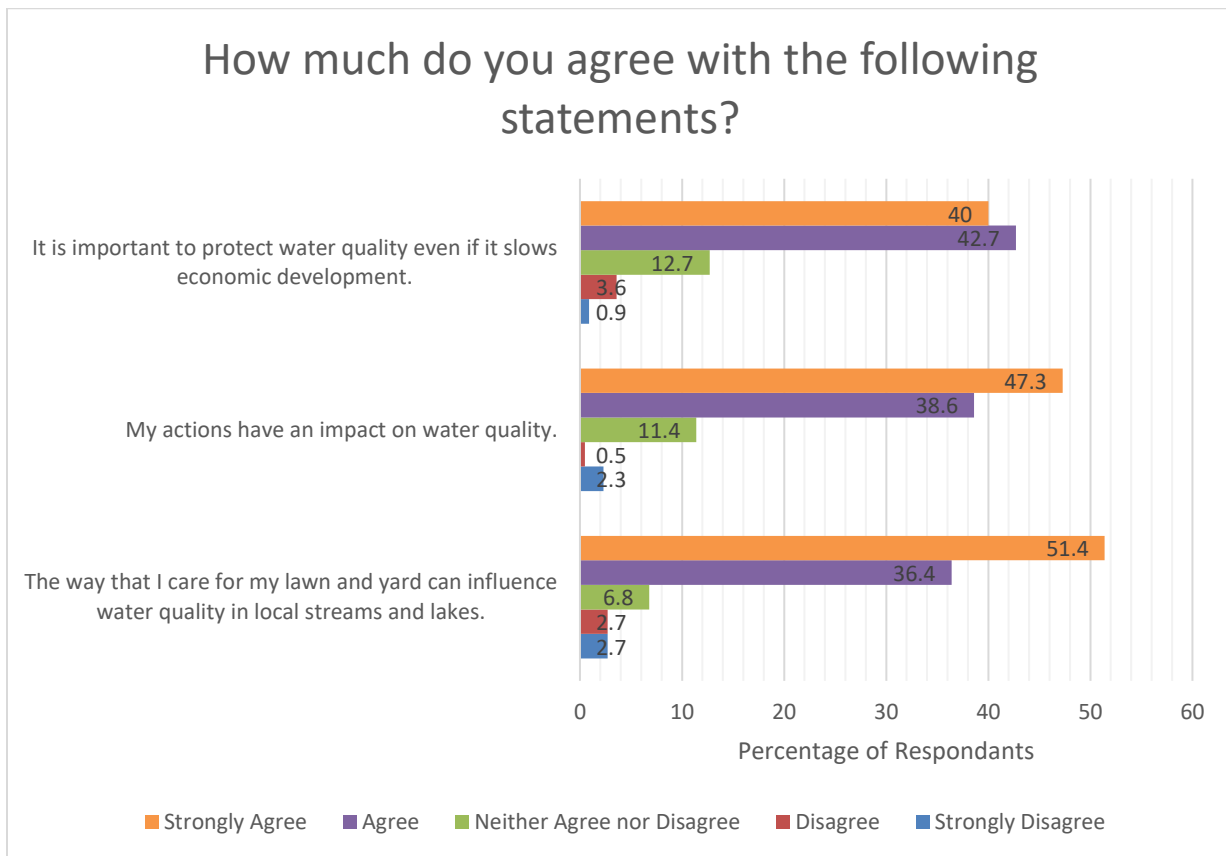
RESULTS: WATER QUALITY RATING

Overwhelmingly, watershed residents rate the quality of our water for boating, fishing, swimming, activities near water, and scenic beauty as “okay” or “good.” Very few say “poor.” The most important activities to them are scenic beauty, boating, and swimming.



76% of respondents know where the water goes when it runs off their property; 24% did not. A majority of the respondents said their runoff goes into nearby lakes, rivers, or other waterbeds. In addition, some respondents answered that it went into their nearby soil and nearby aquifers.

Over 80% of watershed residents expressed agreement or strong agreement with the idea that they have a personal responsibility to protect water quality. This level of agreement was also evident in response to the idea that how they care for their lawn and yard can affect water quality. And 83% agreed or strongly agreed that it is important to protect water quality even if it slows economic development. There was also support and willingness to change personal land management practices to improve water quality, showing that it is worthwhile to reach out with educational efforts.

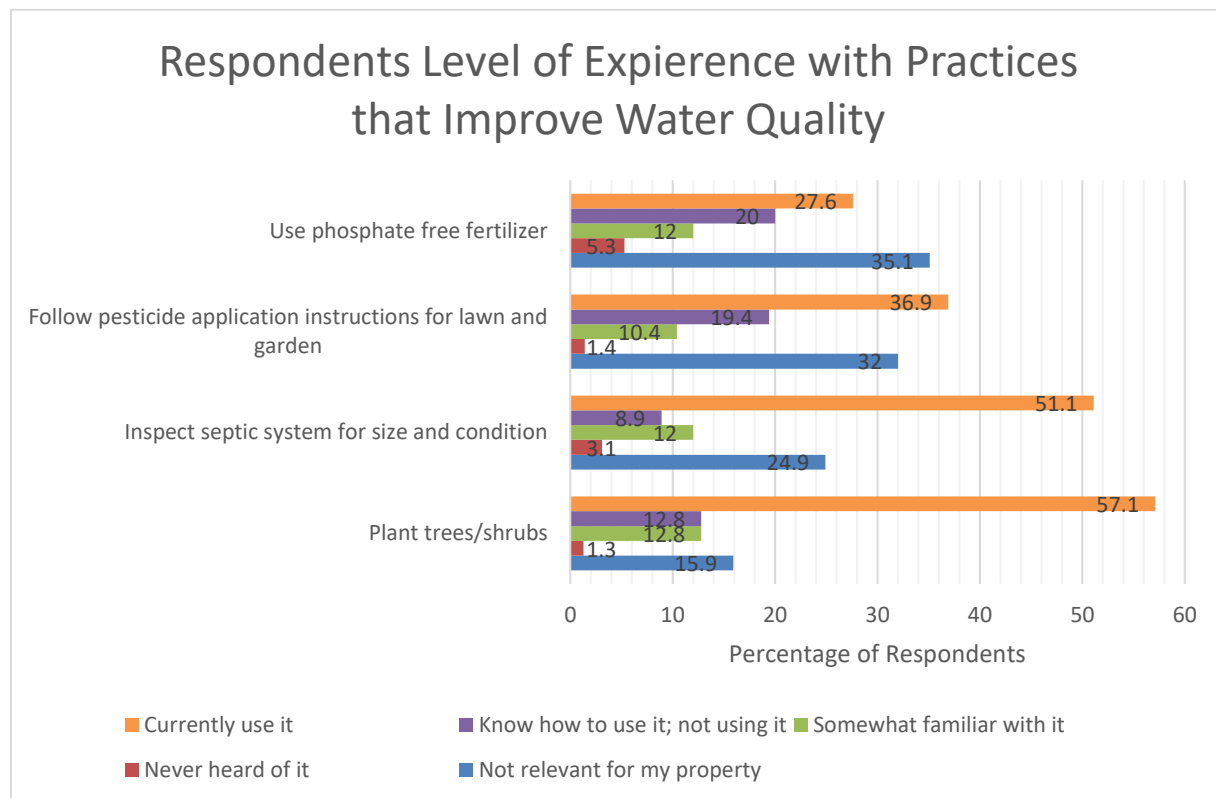


The residents of ERCOL were also asked to assess how significant of a problem seven water quality issues were in their community. Water impairments such as sediments, phosphorus, bacteria and viruses, trash, toxic materials, algae, invasive species, and habitat alteration are potential risks in Michigan waters. To assess watershed resident awareness of these problems, each response was weighted and applied an indicator score (Not a Problem – 1, Slight Problem – 1.5, Moderate Problem – 2, Severe Problem – 2.5). An indicator score of 1 demonstrates less awareness and an indicator score of 2 demonstrates more awareness. The mean indicator score was 1.34. Watershed residents generally believe that there are no severe impairments to the ERCOL Watershed. However, most viewed invasive aquatic plants and animals as the biggest

problem, followed by concerns over sedimentation (dirt and soil in the water), and algae.

RESULTS: HOMEOWNER PRACTICES

In terms of current practices to protect water quality, respondents were given a list of items ranging from following instructions for pesticides to properly disposing of pet wastes. On that list, they were least aware of how to create a rain garden, the use of rain barrels, and the use of porous pavement. However, to protect water quality, respondents expressed familiarity with and noted they were currently using the planting of trees and shrubs; regular inspections of septic systems; and are following directions for use of pesticide applications. Out of the valid responses (Residents who answered “Not relevant for my property” were not counted), the mean indicator score was 1.79. This represents comparatively more awareness of appropriate practices to improve water quality.

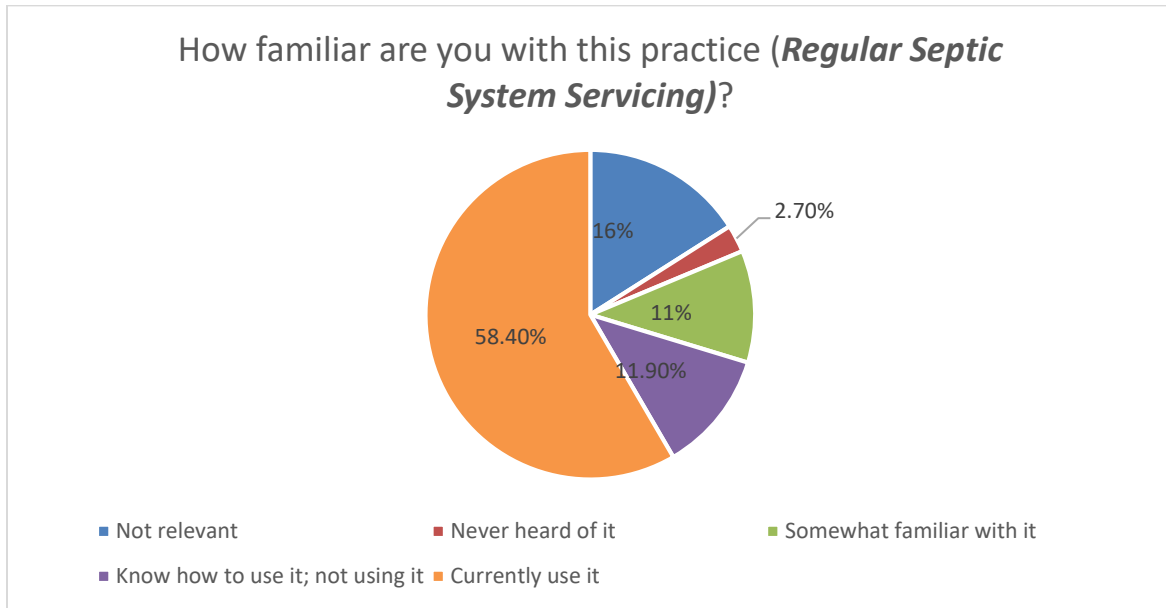


RESULTS: SPECIFIC PRACTICES

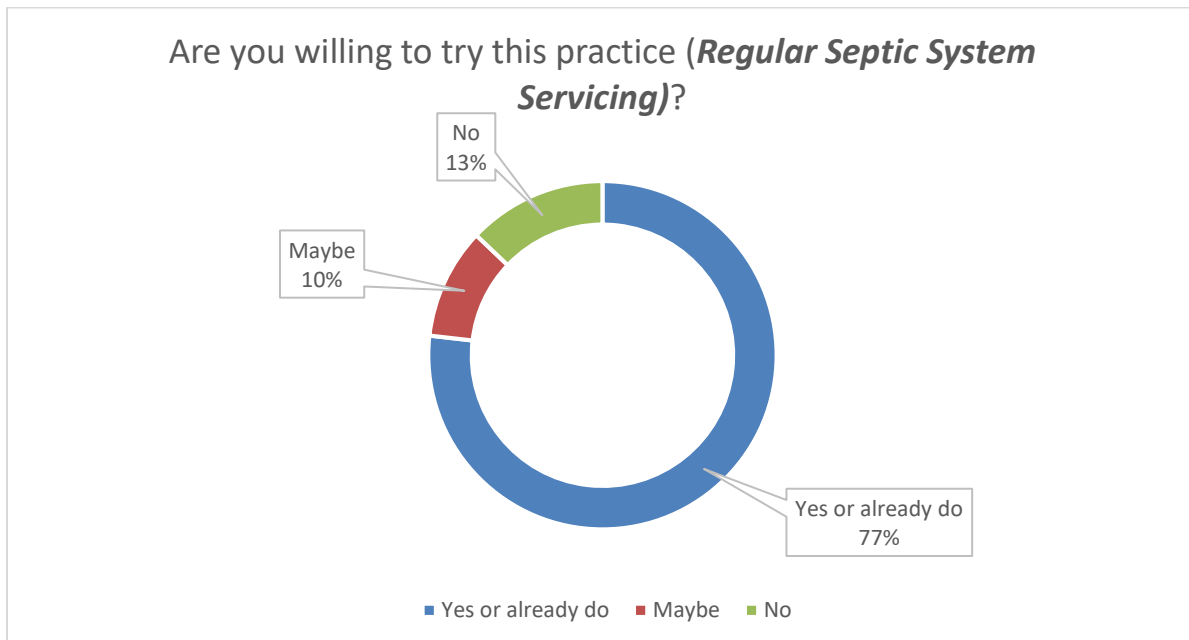
Watershed residents were asked about three specific practices: follow fertilizer instructions; regular septic system servicing; and vegetated riparian buffer. Regarding fertilizer instructions, if it was relevant to use on their property, 43% said they are currently using them. 75% said they are willing to try this practice or already do so. There were no significant factors limiting their ability to implement this practice.

Septic Systems

For septic systems, 16% of respondents answered “not relevant” and the two biggest reasons were that the land does not have a septic system or that it is connected to a city sewer. Minority responses indicated that the land was undeveloped. For respondents who did have septic systems, 58% stated they have their systems pumped every 3-5 years to remove sludge, effluent, and scum from the tank.



77% either already use this practice or are willing to try it. This is another area ripe for education and outreach because importantly, they noted that no significant factors limited their ability to implement this practice.



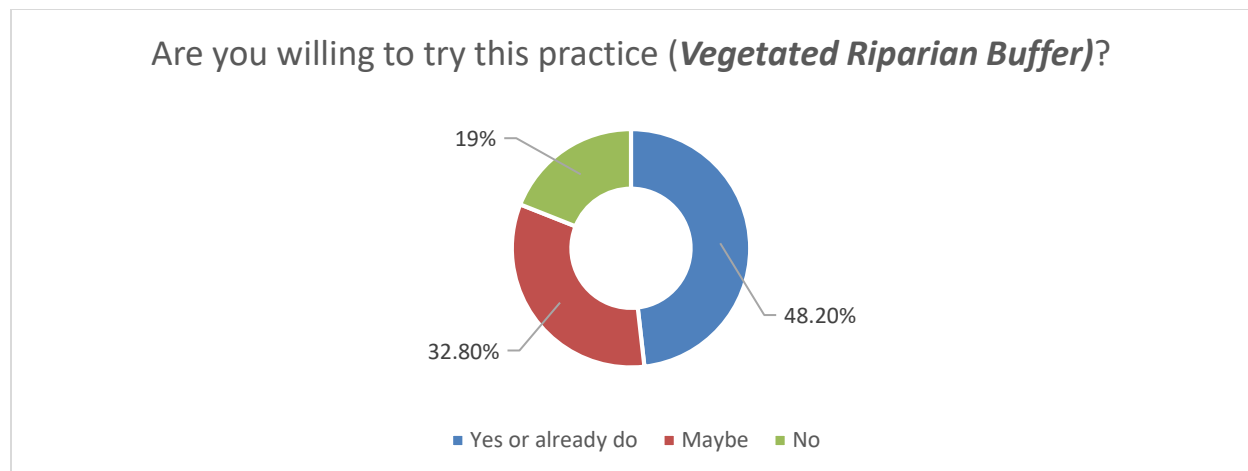
The majority of the respondents' septic systems were installed around 1995, but answers about when they were installed ranged from 1937-2017, meaning some of them have definitely exceeded expected life spans of 25-30 years old. 86% of all who have septic systems reported no troubles. The remaining 14% reported having issues and some who answered noted more than one problem: slow drains, sewage backup in the house, bad smells near tank or drainfield, sewage on the surface, or a frozen septic.

Unfortunately, the respondents do not see a need for septic system oversight by either the Health Department or local governments. When asked if they wanted a reminder from the Health Department to get septic systems pumped or inspected, 73% said no; 10% said yes; and 17% said they did not know. When asked if a local government agency should handle inspection and maintenance of septic systems, 58% said no; 19% said yes; and 23% did not know.

Since 86% of septic system owners have not had problems, the prevailing attitude is that things are fine. However, given the research done on this topic by the Watershed Council over the past few years, this is a population in need of outreach and education. This survey was for residents all over the Watershed, not shoreline property owners where cottages are prevalent and usually only used for part of the year. Watershed residents generally need more information on this topic.

Riparian Buffer Maintenance

This practice is for shorelines, so it is not unexpected that some residents are unaware of this. However, we hope the general public will understand best practices for water quality and support their use on public lands, as well as private. For riparian buffer maintenance, 26% of watershed residents said they currently use it. Those who do not use it said they never heard of it; were somewhat familiar; they know how to use it but do not; or it is not relevant. 48% said they are willing to try this practice or already do; 32% said maybe they would be willing to try it. Only 19% said they are unwilling to try this practice, meaning broad outreach and education efforts should have a good chance of succeeding.



WHERE DO YOU SEEK WATER QUALITY INFO?

When asked where respondents find information about water quality, the following methods were noted, and several respondents listed more than one. A majority listed newsletters, brochures, and fact sheets (56%), followed by 51% who said the Internet. Workshops/demonstrations/meetings were noted by 41%. Newspapers/magazines and conversations with others were listed by 19% and 18%, respectively.

INFO SOURCES

When asked for the most trusted sources of information, the following groups were noted:

- MSU Extension
- Conservation District
- State agricultural agency
- State environmental agency
- Tip of the Mitt Watershed Council
- The Watershed Center Grand Traverse Bay
- ERCOL Watershed Plan Implementation Team (ERCOL-WPIT)
- US EPA
- Local Lake Associations
- Environmental groups

ADDITIONAL QUESTIONS (EXAMPLES)

The survey results bring additional questions that we will explore in the future. For example:

- *Do attitudes differ between seasonal and year-round residents? City and township residents?*
- *What are the differences between shoreline owners who implement a specific practice and those who don't?*
- *How do watershed residents' attitudes compare to local officials' and shoreline property owners'?*

APPENDIX A: RAW DATA RESPONSES

Rating of Water Quality

Overall, how would you rate the quality of the water in your local rivers, streams, and lakes?

	N	Poor (1)	Okay (2)	Good (3)	Don't Know	Mean (SD)
a For canoeing/kayaking/other boating	213	0.5	7	86.4	6.1	2.92 (0.3)
b For eating locally caught fish	213	3.8	15.5	61	19.7	2.71 (0.55)
c For swimming	211	5.2	13.3	75.4	6.2	2.75 (0.55)
d For picnicking and family activities	211	1.4	8.5	85.3	4.7	2.88 (0.37)
e For fish habitat	212	4.7	18.9	57.5	18.9	2.65 (0.59)
f For scenic beauty	214	0.5	3.7	94.9	0.9	2.95 (0.23)

Your Water Resources

1. Of these activities, which is the most important to you? (Check all that apply)

Percent Responded	
23.3	Boating (Motor, sailing, canoeing, kayaking)
13.7	Eating fish caught in the water
19.2	Swimming
6.2	Picnicking and family activities near water
11.0	Fish habitat / fishing
26.7	Scenic beauty / enjoyment

Note: Some respondents chose only one activity, others made multiple choices.

2. Do you know where the water goes when it runs off of your property?

23.8 No, I don't know.

76.2 Yes, it goes to _____ [not yet compiled]_____

N=210

Your Opinions

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

	N	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)	Mean (SD)
a. The way that I care for my lawn and yard can influence water quality in local streams and lakes.	220	2.7	2.7	6.8	36.4	51.4	4.31 (0.92)
b. Using recommended management practices on farms improves water quality.	219	0.9	1.4	10	40.2	47.5	4.32 (0.78)
c. It is my personal responsibility to help protect water quality.	222	0.5	0	5	38.3	56.3	4.5 (0.64)
d. It is important to protect water quality even if it slows economic development.	220	0.9	3.6	12.7	42.7	40	4.17 (0.85)
e. My actions have an impact on water quality.	220	2.3	0.5	11.4	38.6	47.3	4.28 (0.86)
f. I would be willing to pay more to improve water quality (for example: though local taxes or fees)	222	9.5	12.2	32.4	31.5	14.4	3.29 (1.15)
g. I would be willing to change the way I care for my lawn and yard to improve water quality.	215	2.3	8.8	24.7	35.3	28.8	3.8 (1.03)
h. I would be willing to change management practices to improve water quality.	217	2.8	2.8	27.6	42.4	24.4	3.83 (0.92)
i. The quality of life in my community depends on good water quality in local streams, rivers and lakes.	222	0.9	0	7.7	36.9	54.5	4.44 (0.71)

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?

	N	Not a Problem (1)	Slight Problem (2)	Moderate Problem (3)	Severe Problem (4)	Don't Know	Mean (SD)
a. Sedimentation (dirt and soil) in the water	218	22.9	22.9	22.5	5.5	26.1	2.14 (0.95)
b. Phosphorus	220	7.9	11.6	16.2	8.3	56	2.57 (1)
c. Bacteria and viruses in the water (such as E. coli / coliform)	216	17.9	16.1	12.8	8.3	45	2.21 (1.06)
d. Trash or debris in the water	218	30.6	26.9	18.7	9.6	14.2	2.09 (1.01)
e. Toxic materials in the water	219	19	10	7.7	10.9	52.5	2.22 (1.2)
f. Algae in the water	219	18.7	25.6	21.9	6.8	26.9	2.23 (0.94)
g. Invasive aquatic plants and animals	221	10.9	19.5	26.2	16.7	26.7	2.67 (0.99)
h. Habitat alteration harming local fish	219	18.6	15.9	15	8.6	41.8	2.23 (1.06)

Sources of Water Pollution

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?

	N	Not a Problem (1)	Slight Problem (2)	Moderate Problem (3)	Severe Problem (4)	Don't Know	Mean (SD)
a. Discharges from industry into streams and lakes	223	30.9	19.7	12.1	8.1	29.1	1.96 (1.03)
b. Discharges from sewage treatment plants	224	35.7	9.8	11.6	6.2	36.6	1.82 (1.06)
c. Soil erosion from construction sites	223	24.7	24.7	21.1	4	25.6	2.06 (0.91)
d. Soil erosion from farm fields	224	26.8	21	16.1	5.4	30.8	2 (0.97)
e. Soil erosion from shorelines and/or streambanks	223	20.6	26	27.8	4.9	20.6	2.21 (0.9)
f. Excessive use of lawn fertilizers and/or pesticides	222	10.4	16.7	28.4	18.5	26.1	2.74 (0.99)
g. Improperly maintained septic systems	223	10.3	17	25.6	11.2	35.9	2.59 (0.96)
h. Stormwater runoff from rooftops and/or parking lots	223	26	17.9	20.6	7.2	28.3	2.12 (1.02)
i. Stormwater runoff from streets and/or highways	224	20.5	20.5	22.8	9.4	26.8	2.29 (1.01)
j. Street salt and sand	222	17.6	23.4	19.8	10.8	28.4	2.33 (1.01)
k. Droppings from geese, ducks and other waterfowl	222	11.3	27	32	9.9	19.8	2.51 (0.88)
l. Littering/illegal dumping of trash	223	22	28.3	17.5	10.3	22	2.21 (1)
j. Land development or redevelopment	223	18.4	22	21.1	8.5	30	2.28 (0.99)
k. Septic disposal	222	18	17.6	12.2	7.7	44.6	2.17 (1.04)
l. Removal of riparian vegetation	224	16.5	18.8	17	6.7	41.1	2.23 (0.99)
m. Drainage/filling of wetlands	224	20.1	19.2	16.5	11.2	33	2.28 (1.07)
n. Yard maintenance	224	18.8	26.3	24.6	8.5	21.9	2.29 (0.95)

Consequences of Poor Water Quality

Poor water quality can lead to a variety of consequences for communities. In your opinion, how much of a problem are the following issues in your area?

	N	Not a Problem (1)	Slight Problem (2)	Moderate Problem (3)	Severe Problem (4)	Don't Know	Mean (N;SD)
a. Contaminated drinking water	222	46.8	14.9	7.7	10.8	19.8	1.78 (1.09)
b. Polluted swimming areas	223	41.7	26.9	9.4	5.8	16.1	1.75 (0.91)
c. Contaminated fish	221	30.8	23.5	9	6.8	29.9	1.88 (0.97)
d. Loss of desirable fish species	221	21.3	23.1	15.4	9	31.2	2.18 (1.02)
e. Reduced beauty of lakes or streams	222	39.2	29.3	15.3	6.8	9.5	1.89 (0.94)
f. Reduced opportunities for water recreation	222	47.7	23	11.3	4.5	13.5	1.68 (0.89)
g. Excessive aquatic plants or algae	222	18.9	30.6	20.3	9	21.2	2.25 (0.95)

Practices to Improve Water Quality

Please indicate which statement most accurately describes your level of experience with each practice listed below.

	N	Not relevant for my property	Never Heard Of It (1)	Somewhat familiar with it (2)	Know how to use it; not using it (3)	Currently Use It (4)	Mean (SD)
a. Create a rain garden	224	25.9	32.1	25	13.4	3.6	1.84 (0.89)
b. Follow pesticide application instructions for lawn and garden	222	32	1.4	10.4	19.4	36.9	3.35 (0.81)
c. Use phosphate free fertilizer	225	35.1	5.3	12	20	27.6	3.08 (0.97)
d. Use rain barrels	225	41.3	3.6	12.9	32	10.2	2.83 (0.78)
e. Inspect septic system for size and condition	225	24.9	3.1	12	8.9	51.1	3.44 (0.91)
f. Plant trees/shrubs	226	15.9	1.3	12.8	12.8	57.1	3.49 (0.81)
g. Restore native plant communities	225	24.4	5.8	27.1	16.9	25.8	2.83 (0.99)
h. Use porous pavement	226	38.1	19.5	13.7	16.8	11.9	2.34 (1.12)

Your Opinions about Specific Practices

1. How familiar are you with this practice? N=221

- 31.7 Not relevant
- .5 Never heard of it
- 5.4 Somewhat familiar with it
- 19.9 Know how to use it; not using it
- 42.5 Currently using it

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

3. Are you willing to try this practice? N=197
- 75.1 Yes or already do.
 - 10.2 Maybe.
 - 14.7 No.

<i>How much do the following factors limit your ability to implement this practice?</i>	N	Not at All (4)	A little (3)	Some (2)	A lot (1)	Don't Know	Mean (SD)
a. Don't know how to do it	173	66.5	6.4	14.5	1.7	11	3.55 (0.83)
b. Time required	173	66.5	7.5	13.3	4	8.7	3.49 (0.9)
c. Cost	172	58.7	14.5	10.5	7.6	8.7	3.36 (0.98)
d. The features of my property make it difficult	171	65.5	9.4	7.6	7.6	9.9	3.47 (0.96)
e. Insufficient proof of water quality benefit	172	64	6.4	9.3	4.1	16.3	3.56 (0.88)
f. Desire to keep things the way they are	170	60	8.2	8.2	15.9	7.6	3.22 (1.18)
g. Physical or health limitations	170	71.2	5.3	6.5	8.2	8.8	3.53 (0.97)
h. Hard to use with my farming system	166	72.9	1.2	3.6	1.2	21.1	3.85 (0.56)
i. Lack of equipment	169	69.8	7.1	4.1	5.3	13.6	3.64 (0.84)

Regular Septic System Servicing. Having septic system thoroughly cleaned every 3-5 years to remove all the sludge, effluent and scum from the tank.

1. Do you currently or have you ever regularly serviced your septic system? N=219
- 16.0 Not relevant
 - 2.7 Never heard of it
 - 11.0 Somewhat familiar with it
 - 11.9 Know how to use it; not using it
 - 58.4 Currently using it

2. If the practice is not relevant, please explain why. _____

3. Are you willing to try this practice? N=194
- 76.8 Yes or already do
 - 10.3 Maybe
 - 12.9 No

<i>How much do the following factors limit your ability to regularly service your septic system (or limit, if you already do)?</i>	N	Not at All (4)	A little (3)	Some (2)	A lot (1)	Don't Know	Mean (SD)
a. Don't know how to do it	170	78.2	4.7	6.5	2.4	8.2	3.73 (0.7)
b. Time required	169	78.7	6.5	5.3	1.8	7.7	3.76 (0.65)
c. Cost	171	62	11.7	8.2	9.9	8.2	3.37 (1.03)
d. The features of my property make it difficult	170	78.2	2.9	5.3	2.9	10.6	3.75 (0.71)
e. Insufficient proof of water quality benefit	171	74.3	4.1	4.7	3.5	13.5	3.72 (0.75)
f. Desire to keep things the way they are	168	72	4.8	6	8.9	8.3	3.53 (0.98)
g. Physical or health limitations	166	77.7	7.2	3.6	3.6	7.8	3.73 (0.72)
h. Hard to use with my farming system	165	78.2	1.8	1.2	0	18.8	3.95 (0.28)
i. Lack of equipment	170	74.1	1.8	3.5	6.5	14.1	3.67 (0.87)

Vegetated Riparian Buffer: Establishing vegetation to function as a buffer to water bodies and water courses.

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

1. How familiar are you with this practice?

N=217

21.2 Not relevant

21.7 Never heard of it

20.3 Somewhat familiar with it

10.6 Know how to use it; not using it

26.3 Currently use it

3. Are you willing to try this practice?

N=195

48.2 Yes or already do

32.8 Maybe

19.0 No

<i>How much do the following factors limit your ability to implement this practice (or limited, if you already do)?</i>	N	Not at All (4)	A little (3)	Some (2)	A lot (1)	Don't Know	Mean (SD)
a. Don't know how to do it	177	57.6	6.8	10.2	9	16.4	3.35 (1.06)
b. Time required	173	55.5	12.7	12.1	2.3	17.3	3.47 (0.85)
c. Cost	173	55.5	8.7	10.4	6.4	19.1	3.4 (0.99)
d. The features of my property make it difficult	176	56.2	8.5	9.1	8	18.2	3.38 (1.02)
e. Insufficient proof of water quality benefit	173	64.7	4.6	5.2	2.9	22.5	3.69 (0.76)
f. Desire to keep things the way they are	173	65.9	6.4	6.9	7.5	13.3	3.51 (0.97)
g. Physical or health limitations	177	67.2	6.8	6.8	5.1	14.1	3.59 (0.87)
h. Hard to use with my farming system	173	72.8	3.5	1.7	0.6	21.4	3.89 (0.43)
i. Lack of equipment	174	66.1	6.9	2.3	5.2	19.5	3.66 (0.82)

Making Decisions for my Property

In general, how much does each of these issues limit your ability to change your household and lawn care practices?

	N	Not at All (4)	A little (3)	Some (2)	A lot (1)	Don't Know	Mean (SD)
a. Personal out-of-pocket expense	208	28.8	18.8	27.9	18.3	6.2	2.62 (1.12)
b. My own physical abilities	208	42.3	16.8	23.6	11.1	6.2	2.96 (1.09)
c. Not having access to the equipment that I need	205	40	16.1	14.6	14.6	14.6	2.95 (1.15)
d. Lack of available information about a practice	204	41.7	11.8	21.6	13.2	11.8	2.93 (1.15)
e. No one else I know is implementing the practice	202	50	5.4	11.4	6.9	26.2	3.34 (1.05)
f. Approval of my neighbors	205	64.4	3.4	6.3	5.4	20.5	3.6 (0.9)
g. Don't know where to get information and/or assistance about those practices	203	40.9	12.3	14.8	11.3	20.7	3.04 (1.13)
h. Environmental damage caused by practice	199	52.8	5	9.5	6.5	26.1	3.41 (1.02)
i. Concerns about resale value	198	55.1	6.1	12.1	7.6	19.2	3.34 (1.05)
j. Not being able to see a demonstration of the practice before I decide	198	50	10.6	14.1	7.6	17.7	3.25 (1.04)
k. The need to learn new skills or techniques	198	46.5	13.1	16.2	7.1	17.2	3.2 (1.03)

About You

1. Do you make the home and lawn care decisions in your household?

N=224
95.5 Yes
4.5 No

2. What is your gender?

N=220
66.4 Male
33.6 Female

3. What is your age? _____

N=198
31 – 105 Range
63.58 Average

4. What is the highest grade in school you have completed?

N=220
1.4 Some formal schooling
13.2 High school diploma / GED
17.7 Some college
10.9 2 year college degree
30.5 4 year college degree
26.4 Post-graduate degree

5. What is the approximate size of your residential lot?

N=220
11.8 ¼ acre or less
21.8 More than ¼ acre but less than 1 acre
34.1 1 acre to less than 5 acres
32.3 5 acres or more

6. Do you own or rent your home?

N=220
99.1 Own
.9 Rent

7. How long have you lived at your current residence (years)?

N=219
0-100 Range
21.35 Mean

8. Which of the following best describes where you live?

N=220
28.6 In a town, village, or city
40.9 In an isolated, rural, non-farm residence
22.7 Rural subdivision or development
7.7 On a farm

9. Do you use a professional lawn care service?

N=224
8 Yes, just for mowing
4.5 Yes, for mowing and fertilizing
4.9 Yes, just for fertilizing and pest control
3.6 Yes, for mowing, fertilizing, and pest control
79 No

10. Where are you likely to seek information about water quality issues? (check all that apply)

N=219
56.2 Newsletters/brochures/fact sheet
51.1 Internet
9.1 Radio
19.6 Newspapers/magazines
41.1 Workshops/demonstrations/meetings
18.7 Conversations with others
13.7 Other - _____

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?

	N	Not at All (1)	Slightly (2)	Moderately (3)	Very much (4)	Am not familiar	Mean (SD)
a. Soil and Water Conservation District	211	2.8	6.6	22.3	56.9	11.4	3.5 (0.77)
b. Local government	210	11.9	21.4	42.9	19.5	4.3	2.73 (0.93)
c. U.S. Environmental Protection Agency	210	10.5	20.5	31.4	30.5	7.1	2.88 (1)
d. University Extension	212	6.6	8	18.4	59.9	7.1	3.42 (0.92)
e. State agricultural agency	212	5.2	9.9	30.2	51.4	3.3	3.32 (0.87)
f. State environmental agency	210	7.1	13.8	31.4	38.6	9	3.12 (0.94)
g. Environmental groups	211	11.8	25.1	30.3	23.7	9	2.72 (0.99)
h. Local garden center	208	15.4	23.6	44.2	7.2	9.6	2.48 (0.87)
i. Lawn care company	210	34.3	30	21.4	2.4	11.9	1.91 (0.86)
j. Local community leader	208	26	31.2	26.4	4.8	11.5	2.11 (0.9)
k. Other landowners / friends	212	9.9	31.1	42	13.2	3.8	2.61 (0.85)
l. Local Lake Associations	211	7.1	16.6	34.6	29.4	12.3	2.98 (0.92)
m. The Watershed Center Grand Traverse Bay	212	11.3	10.4	23.6	34	20.8	3.01 (1.07)
n. Tip of the Mitt Watershed Council	211	8.1	12.8	22.3	37	19.9	3.1 (1.01)
o. The ERCOL-WPIT	211	13.3	7.1	23.2	34.1	22.3	3.01 (1.1)
p. Local tribes	211	29.4	12.3	17.5	8.1	32.7	2.06 (1.09)

Septic Systems

1. Do you have a septic system?

N=215

20.9 No

1.5 Don't Know

78.1 Yes

2. If you answered 'yes' to the previous question, what year was it installed?

N=140

1937 – 2017 Range

1995.51 Average

3. Within the last five years, have you had any of the following problems? (Check all that apply)

N=200

7.0 Slow Drains

3.0 Sewage backup in house

2.5 Bad smells near tank or drain field

1.0 Sewage on the surface

0.0 Sewage flowing to ditch

1.5 Frozen septic

2.5 Other

86.0 None

2.0 Don't know

4. In the future, would you like a reminder from your local health department regarding inspection/maintenance of your septic system?

N=199

17.1 Yes

72.9 No

10.1 Don't know

5. How would you know if your septic system was NOT working properly? (Check all that apply) N=195

70.3 Slow Drains

61.0 Sewage backup in house

64.1 Bad smells

66.2 Toilet backs up

57.9 Wet spot in lawn

26.2 Pumping tank monthly or more

9.7 Straight pipe to ditch

19.5 Frozen septic

10.8 Don't know

6.2 Other

6. Do you think a local government agency should handle inspection and maintenance of septic systems?

N=210

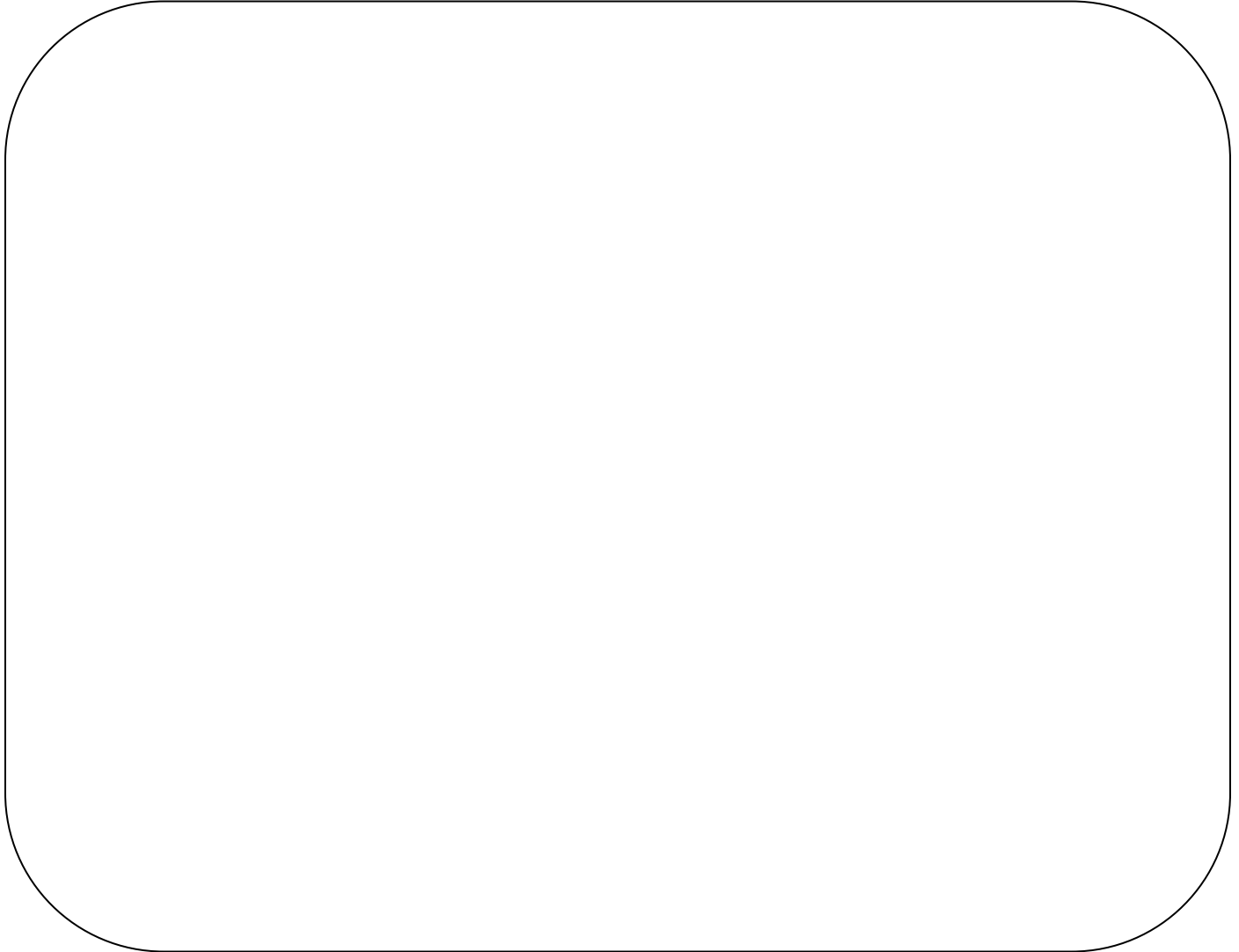
19.0 Yes

58.1 No

22.9 Don't Know

Thank you for your time and assistance!

Please return your completed survey in the postage-paid envelope provided. Please use the space below for any additional comments about this survey or water resource issues in your community.



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