

Lake Charlevoix Social Indicators Study

Watershed Residents Survey Report

December 2020

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Survey distribution summary

Survey dates: June - September 2020

Surveys sent: 950
Undeliverable: 124
Deliverable addresses: 826
Responses: 188 (22%)

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Key Findings from the Lake Charlevoix Watershed Residents Survey

INTRODUCTION

Tip of the Mitt Watershed Council conducted a series of three surveys in the Lake Charlevoix Watershed during 2019-2020 with watershed residents, shoreline property owners, and local officials. These were done as a follow up to a similar series of surveys among the same three groups, done in 2010-2011, in partnership with Michigan State University Extension (MSUE). The original surveys were reviewed by MSUE, the Watershed Council, and the Lake Charlevoix Watershed Plan Advisory Committee members to see what residents and local officials were worried about, and what topics they needed more information about regarding water quality in the region.

After updating the Watershed Management Plan and implementing a number of projects related to what we heard from the original survey respondents, we administered the latest series of surveys. The questions asked were identical to the questions in the earlier surveys; however, some new questions were also added. The reported results will highlight any measurable changes, and help guide the direction of future projects and educational efforts to protect water quality in the Lake Charlevoix Watershed.

METHODOLOGY

Both the original and the most recent survey series used a “five wave design.” In this method, a pre-survey letter was mailed first. One week later, the survey with a cover letter and self-addressed stamped envelope was sent to watershed residents. A reminder postcard was mailed two weeks after the first survey mailing to all non-respondents. A second survey with a cover letter and self-addressed stamped envelope was sent to non-respondents around two weeks after the postcard reminder. A final reminder letter was sent to the watershed residents who had not responded, two weeks after the second survey.

So that respondents were not sent duplicate surveys, a tracking number was placed on the corner of every survey. When the survey was returned, the number was cut off and separated from the survey. This ensured that the tracking number and survey answers could be entered without being able to associate any survey answers to a specific person.

Below are the key findings of the 2020 survey of watershed residents. *Information shown in italics below will summarize the comparison between the two survey series.*

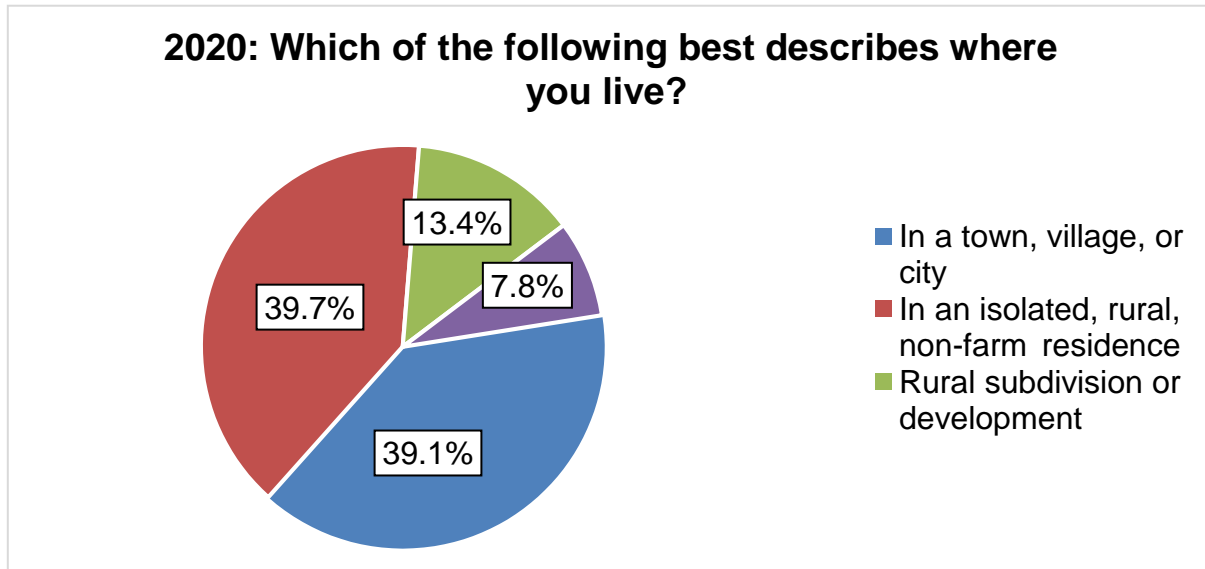
WHO RESPONDED?

The overwhelming majority – 100% – of the responses in 2020 came from homeowners, with zero responding that they are renters. In 2010, the first survey had over 98% noting they were homeowners, with an average age of 59 years old. The average age of survey respondents this time was a bit older, at 69 years old, and the majority were male; 67% as compared to 72% male in the original survey. Respondents to the first series of surveys had more education than the general area population, with 50% having a college or graduate degree. The respondents this time were also a highly educated group with 62% having college degrees.

To summarize, the new survey respondents were also a majority of homeowners; 10 years older, on average, than prior survey respondents; and 5% more females, who were still a minority in submitting answers. The new survey represented even more highly educated respondents, with 12% more having college degrees than those in the original survey.

In 2010, 6 of 10 respondents were year-round residents and one-third lived in a city, village, or township. Survey results in 2020 show 53% are year-round residents, and 39% of live "in a town, village, or city." See Chart 1. *There are slightly fewer year-round residents in the 2020 responses, and a 6% increase in respondents living in townships, villages, or cities rather than a more isolated, rural non-farm, or farm residence.*

Chart 1.



RESULTS

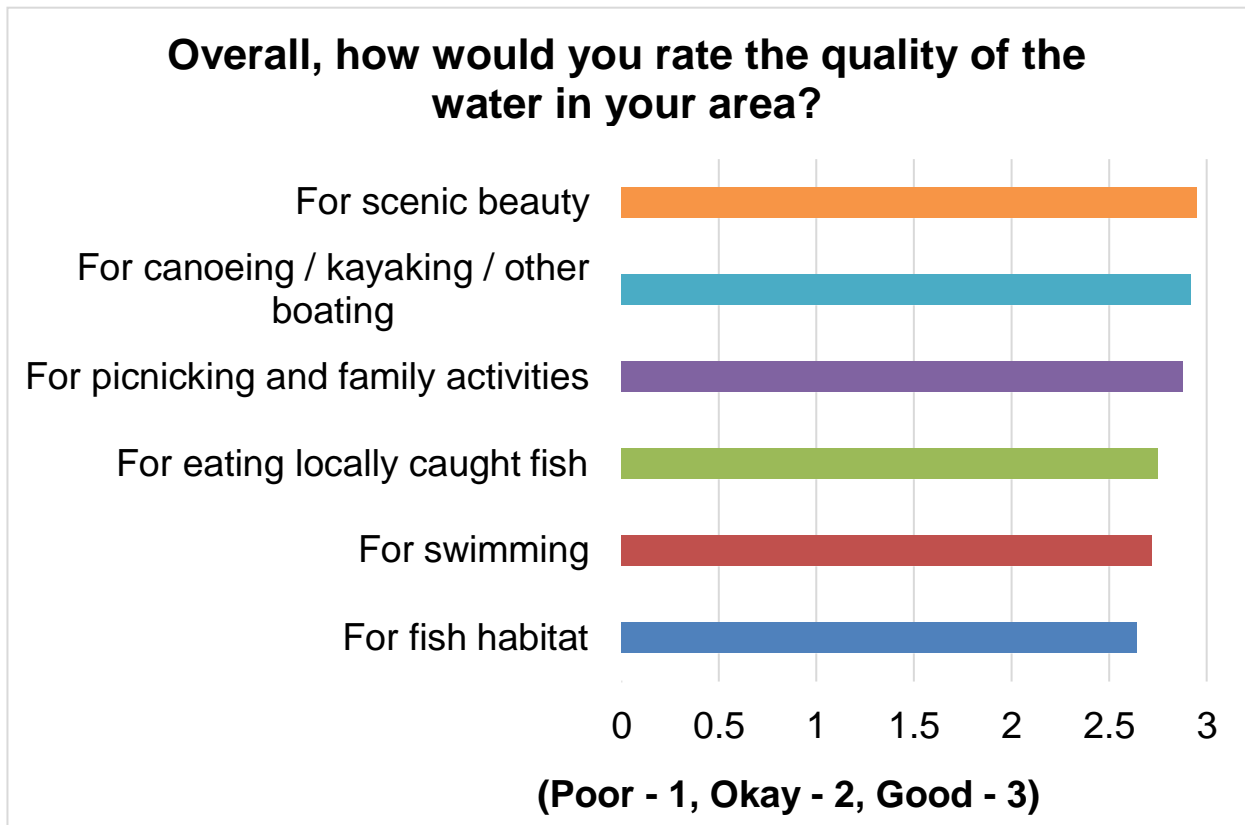
RESIDENTS BELIEVE OUR WATER QUALITY IS GOOD

In the original survey series, very few residents believed water quality in the watershed was "poor." Overwhelmingly, they rated the quality of our water for

boating, fishing, swimming, activities near water, and scenic beauty as “okay” or “good.” The most important activities to them were scenic beauty, boating, and swimming.

In the 2020 survey, responses were quite similar, with 85% of respondents rating the quality of water "good" for scenic beauty, boating, and activities near water. The most common response regarding activities considered to be most important to them were scenic beauty and boating, with 54% of total responses. See Chart 2. *This indicates not much change in attitudes or beliefs about our water quality.*

Chart 2.



Additionally, in 2010, 30% did not know where their water goes when it runs off their property. In 2020, that improved. Only 19% of those surveyed stated they do not know where the rain water goes when it runs off their property, a decrease of 11%. This indicates some increased awareness of water impacts on residential property.

WATER QUALITY IS GOOD ECONOMICS

Both series of surveys indicated that a clear majority of respondents agree it is not okay to reduce water quality to promote economic development. In 2010, more than 4 of 5 respondents agreed or strongly agreed that “economic stability depends on good water quality,” and in 2020, that was among the top three statements upon which respondents strongly agree.

Similarly, in 2010, 80% agreed or strongly agreed with the following statements, and in 2020 these were also statements with which most respondents agreed or strongly agreed:

- It is important to protect water quality even if it slows economic development
- Quality of life in the community depends on good water quality in lakes, rivers, and streams

Who pays, though, was another matter. *In 2010, although 3 of 5 agreed or strongly agreed that it is important to protect water quality even if it costs them more, only 2 of 5 agreed that they would be willing to pay more to improve water quality (for example, through increased taxes and fees). In 2020, most respondents were neutral on this response, rather than leaning against it, indicating resistance may have diminished.*

WATER IMPAIRMENTS

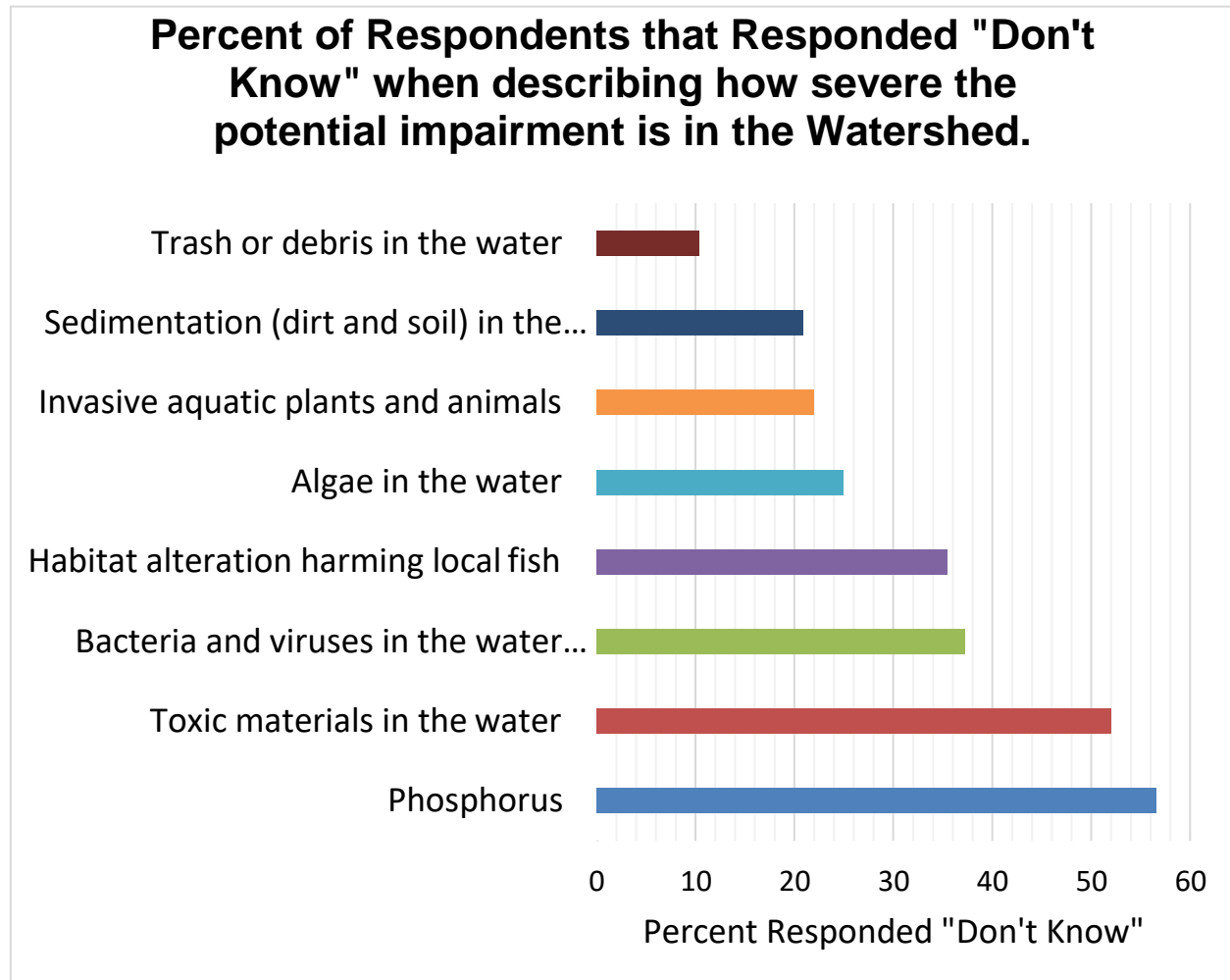
Water pollutants and impairments, such as sediments, phosphorus, bacteria and viruses, trash, toxic materials, algae, invasive plants, and habitat alteration are all potential risks in Michigan waters. These were all presented in the surveys for respondents to rank in terms of threat. In 2010, watershed residents generally believed that there were no severe impairments to the Lake Charlevoix Watershed. We find similar results in 2020, with some nuanced changes.

In 2010, invasive aquatic plants and animals was viewed as the biggest problem, in terms of water impairments. It was rated by 6 of 10 as a moderate or severe issue. *Similarly, in 2020, the most severe problem is again noted to be invasive aquatic plants and animals. This is encouraging, because invasive species do pose a significant challenge and watershed residents continue to have a general knowledge of this danger. The Watershed Plan Advisory Committee members should continue all educational efforts in this regard, because they are fostering an awareness of the invasive species issue.*

A fairly high percentage of respondents in 2010, ranging from 14% to 60%, didn't know if a listed impairment was a problem or not, especially phosphorus, toxics, bacteria and viruses, and fish habitat – all impairments that are not easy to see. In 2020, again we see a significant portion of respondents who "don't know" whether an option poses a threat to the Watershed, ranging between 10% to 56% - a similar range, but about 5% lower than a decade ago.

For example, you can see in Chart 3 that half "don't know" of any problem toxic materials in the water and phosphorus may present to the Watershed.

Chart 3.



SOURCES OF WATER POLLUTION

In 2010, respondents also said that most sources leading to water pollution were only slight problems. Once again, a significant percentage (range of 17% to 47%) said they “don’t know” if a particular source of pollution was a problem or not.

In 2020, no source of water pollution listed was deemed “severe” by respondents. However, Lake Charlevoix Watershed residents now do believe the “excessive use of lawn fertilizers and/or pesticides” and “soil erosion from shorelines and/or streambanks” have become “moderate” problems that can cause water pollution. *Both of those increased about 10% in terms of being listed as a moderate problem rather than a slight problem. Fewer residents in 2020, a range of only 12% to 36%, stated they “don’t know” if a particular source of pollution was a problem.*

To summarize, in the past decade, awareness of potential sources of water pollution has increased, in a range of 5-11% more general knowledge than before. This is encouraging and supports additional outreach and educational efforts regarding the various potential sources of local water pollution.

In terms of consequences of water pollution, the results from 2010 reflected that landowners didn't think that issues like beach closures, contaminated fish, reduced beauty, or opportunities for recreation were problems. *By contrast, in 2020, concerns were elevated. Lake Charlevoix Watershed residents now believe the "loss of desirable fish species" and "excessive aquatic plants or algae" are becoming moderate problems in the area. They also elevated every listed consequence to being more moderate or severe problems than reflected in 2010. In spite of expressing confidence earlier that water quality remains good, these questions reflect growing concerns about water quality, and education and projects directed at improving habitat and managing aquatic plants, in addition to stormwater runoff, would likely be meaningful to residents in the watershed, generally.*

PRACTICES TO IMPROVE WATER QUALITY

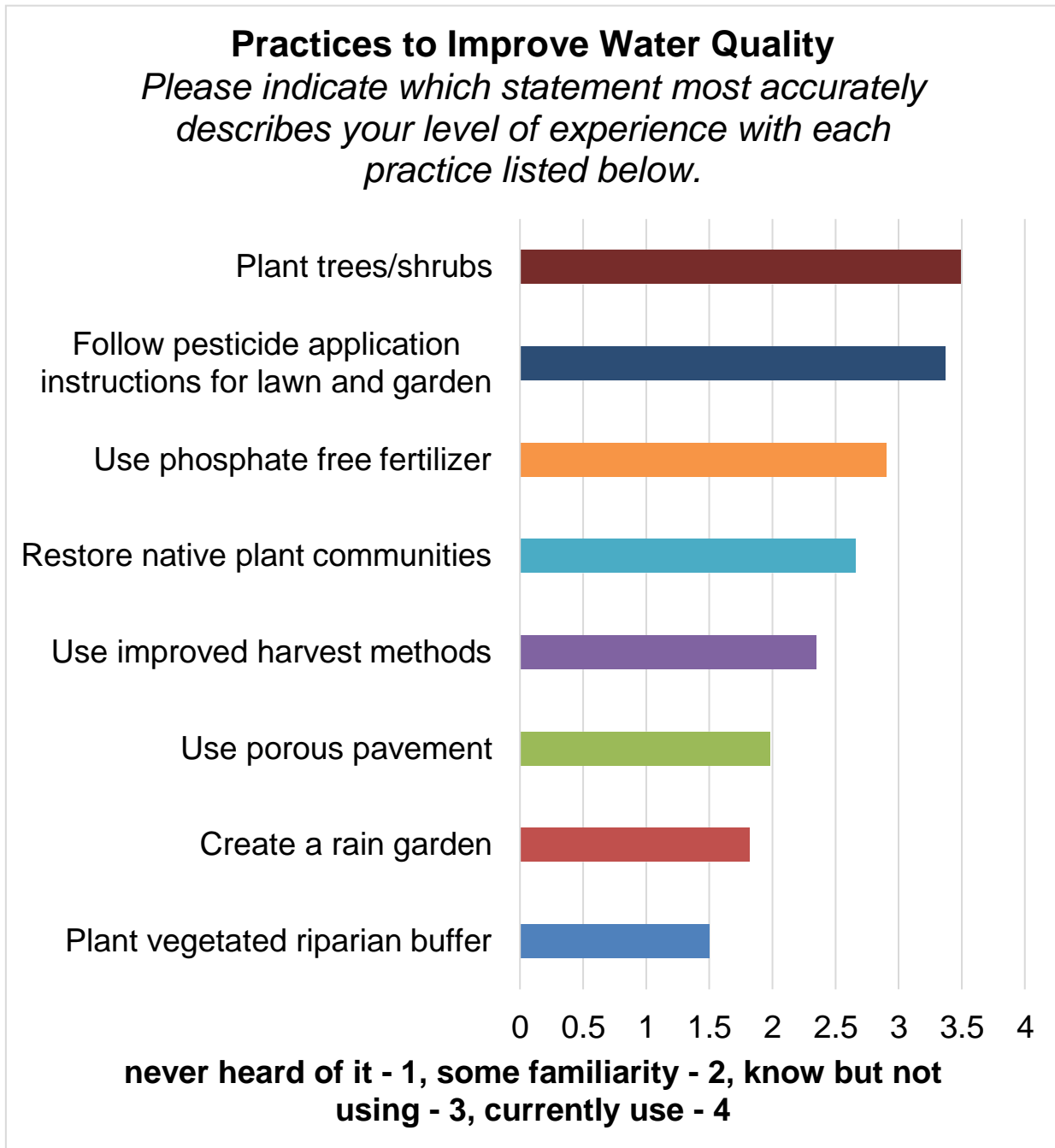
In 2010, 9 of 10 believed that the way they care for their lawn and garden can influence water quality, and it is their personal responsibility to help protect water quality. In 2020, these responses were even stronger. Those who "strongly agree" that their lawn and garden practices influence water quality went from 37% to 45%. Those who "strongly agree" it is their personal responsibility to help protect water quality went from 40% to 52%.

In both survey series, respondents were given a list of practices to protect water quality, ranging from following instructions for pesticides to installing a rain garden. *Residents in 2010 were least familiar with newer practices like creating a rain garden and using porous pavement. 56% of respondents in 2020 said "Use porous pavement" is not applicable to them. This indicates a possible misunderstanding of porous pavement, and since it is becoming more affordable and part of the toolkit when using Green Infrastructure, more education is needed on this topic.*

In 2010, the most common practices landowners used to improve water quality were planting trees and shrubs (7 of 10), using phosphate-free fertilizers (3 of 10), and following pesticide application instructions (5 of 10). A very high percentage (9 of 10) said they already apply lawn fertilizer at or below manufacturer's recommendations, or are willing to try it. In 2020, Lake Charlevoix Watershed residents answered that the most familiar activities on the list were the same top three items from 2010 (see Chart 4). 3 of 4 said they either already do or are willing to try applying lawn fertilizer according to manufacturer's recommendations.

Surprisingly, in 2020, the activities about which they were least knowledgeable are "Plant a vegetated riparian buffer" and "Create a rain garden." This is surprising because there have been some recent projects in the watershed that highlight the benefits of riparian buffers and rain gardens. Timing is important, however, and this survey was in the field during summer 2020. Most of the publicity for those new projects may have happened simultaneously or afterwards. Either way, survey results support more educational outreach on these two topics.

Chart 4.



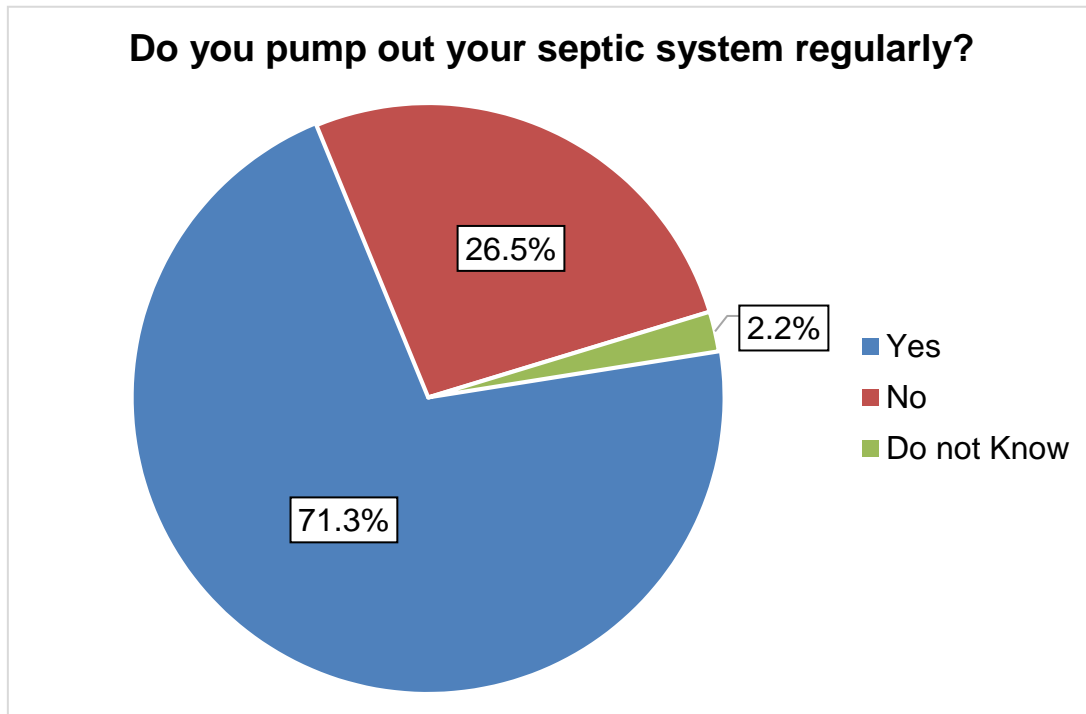
SPECIFIC PRACTICES

In addition to following fertilizer instructions, watershed residents were asked about two other specific practices, regular septic system servicing and vegetated riparian buffers.

Septic Systems

In 2010, 57% of respondents who had septic systems already used the practice of regularly pumping septic system tanks. 2020 responses were much improved. 71% regularly pump septic system tanks, a 14% increase as shown in Chart 5 below. This is a win because the Watershed Council and the Health Department teamed up in the intervening years between surveys to increase education and outreach on this topic using the Septic Question Project, which addresses water quality concerns. Survey results indicate that at least the message to "pump your septic tank regularly" has been getting through to property owners, as demonstrated by this measurable change.

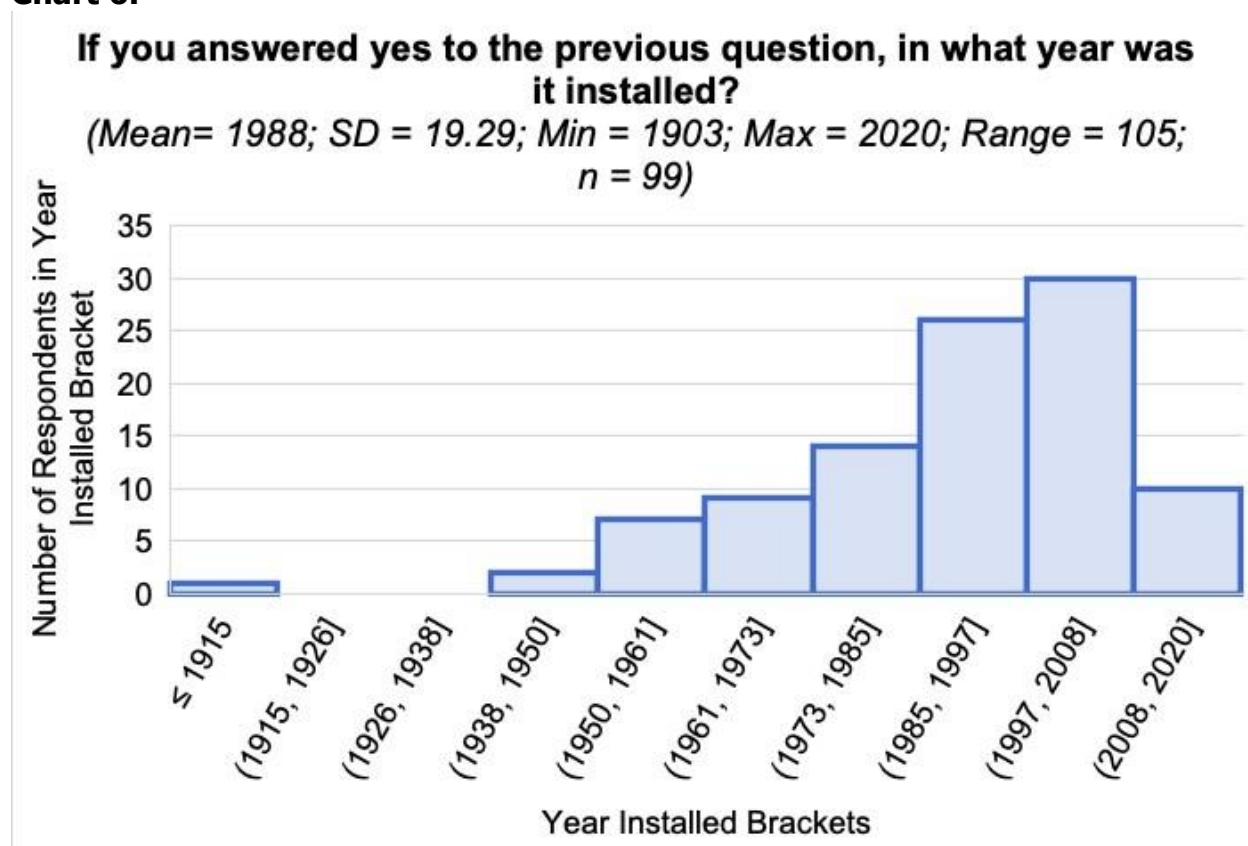
Chart 5.



For the survey in 2020, an entire section was added to collect more information on septic systems in the watershed. The rest of the responses in this section apply only to the 2020 survey series, since these questions were not asked in 2010.

Of the respondents in 2020, the majority had septic systems (Chart 6), and when asked what year they were installed, responses ranged from 1903 to 2020. Many have definitely exceeded expected life spans for septic systems of 25-30 years.

Chart 6.



When asked if they know the location of their septic tank and drainfield, 91% said yes and 9% said they do not know. 88% of all who have septic systems reported no troubles. The remaining 12% reported having issues and 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. *Because there are no laws in the state or locally in this watershed to regularly inspect septic systems, those 12% having issues may go uncorrected for too long to prevent pollution.*

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, 72% said no; 16% said yes; and 12% said they did not know. When asked if a local government agency should handle inspection and maintenance of septic systems, 51% said no; 25% said yes; and 24% did not know. *Interestingly, when asked if respondents had a septic system permit on file with the Health Department, 49% said yes; 9% said no; and a whopping 41% did not know.*

Since 88% 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 additional outreach and education. This survey was for residents all over the Watershed, not shoreline property owners where cottages are prevalent and often only used for part of the year. Watershed residents generally need more information on this topic.

Vegetated Riparian Buffers

This practice is for shorelines, so it is not unexpected that some respondents from this survey of general watershed residents are unaware of it. Additionally, when considering the results from this section, it is important to remember that the responses in the 2020 series were half of what we received in 2010. So in 2020, our population was smaller, and the most common answers for “If the practice is not relevant, please explain why” were that the resident does not live on a streambank or shoreline.

However, we hope the general public will understand best practices for water quality and support their use on public lands, as well as private. That is why we educate the general public about vegetated riparian buffers and included them in these surveys.

In 2010, 33% of respondents noted that they currently protect shorelines with vegetated buffers. Only 13% were using it in 2020, but 46% noted they were willing to try it or already do.

WHERE DO YOU SEEK WATER QUALITY INFO?

In 2010, residents said they most commonly seek water quality information from newsletters, brochures, and factsheets (one-half). Conversations with others, the Internet, and newspapers and magazines were all used by 4 of 10. Only 1 in 6 sought information from radio or workshops, demonstrations, and meetings. They most trusted MSUE, the state agriculture agency, the Local Watershed Project, Tip of the Mitt Watershed Council, conservation districts, and conservation organizations. Least trusted were lawn care companies, tribal government, and local community leaders.

When asked where respondents find information about water quality in 2020, the following methods were noted and results were similar. A majority listed newsletters, brochures, and fact sheets (53%), followed by 46% who said the Internet. This was followed by conversations with others at 40%; workshops/demonstrations/meetings were noted by 19%. Trade publications/magazines were listed by 13% and 13% said “none of the above.” Only 7% listed radio. The most trusted sources of information were: Local Watershed Project, MSUE, and Tip of the Mitt Watershed Council. The least trusted sources were the same as in 2010.

APPENDIX A: RAW DATA RESPONSES

Watershed Residents

Lake Charlevoix Watershed Social Indicators Study

Rating of Water Quality

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

	N	Poor (1)	Okay (2)	Good (3)	Don't Know	Mean (SD)
a. For canoeing/kayaking/other boating	164	0	7.5	87.3	5.2	2.92 (0.27)
b. For eating locally caught fish	150	2.8	15.3	67	14.8	2.75 (0.5)
c. For swimming	167	2.9	20.7	72.4	4	2.72 (0.51)
d. For picnicking and family activities	168	1.7	8.5	85.2	4.5	2.88 (0.38)
e. For fish habitat	143	4	21	56.2	18.8	2.64 (0.57)
f. For scenic beauty	170	0	5.1	92	2.9	2.95 (0.22)

Your Water Resources

1. Of these activities, which is the most important to you?

- 22.7 For canoeing/ kayaking / other boating
- 13.4 For eating locally caught fish
- 16.0 For swimming
- 9.2 For picnicking and family activities
- 7.6 For fish habitat
- 31.1 For scenic beauty

N=119

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

- 18.9 No
- 81.1 Yes

N=169

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 economic stability of my community depends upon good water quality.	181	1.1	1.7	3.9	47	46.4	4.36 (0.74)
b. The way that I care for my lawn and yard can influence water quality in local streams and lakes.	180	1.7	2.8	7.8	42.8	45	4.27 (0.85)
c. It is my personal responsibility to help protect water quality.	181	0	0	3.9	44.8	51.4	4.48 (0.57)
d. It is important to protect water quality even if it slows economic development.	179	0	0.6	11.7	48.6	39.1	4.26 (0.68)
e. What I do on my land does not make much difference in overall water quality.	178	34.3	38.2	10.1	12.9	4.5	2.15 (1.16)
f. Lawn and yard-care practices {on individual lots} do not have an impact on local water quality.	178	44.9	41	5.6	7.9	0.6	1.78 (0.91)
g. My actions have an impact on water quality.	180	2.8	1.1	10.6	47.2	38.3	4.17 (0.87)
h. Taking action to improve water quality is too expensive for me.	178	15.2	32	45.5	6.7	0.6	2.46 (0.85)
i. It is okay to reduce water quality to promote economic development.	179	40.2	51.4	7.8	0	0.6	1.69 (0.66)
j. It is important to protect water quality even if it costs me more.	178	1.7	5.1	25.3	50	18	3.78 (0.86)
k. I would be willing to pay more to improve water quality {for example - through local taxes or fees}	177	6.2	13.6	26	43.5	10.7	3.39 (1.05)
l. I would be willing to change the way I care for my lawn and yard to improve water quality.	177	2.3	2.8	28.2	46.9	19.8	3.79 (0.87)
m. The quality of life in my community depends on good water quality in local streams, rivers, and lakes.	180	1.1	0.6	5	43.3	50	4.41 (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	140	11.3	28.2	32.2	7.3	20.9	2.45 (0.85)
b. Phosphorus	76	6.3	8	14.3	14.9	56.6	2.87 (1.05)
c. Bacteria and viruses in the water (such as E.coli / coliform)	108	12.8	18.6	13.4	18	37.2	2.58 (1.11)
d. Trash or debris in the water	155	17.3	29.5	26	16.8	10.4	2.47 (1.01)
e. Toxic materials in the water	83	7.5	12.1	12.7	15.6	52	2.76 (1.08)
f. Algae in the water	130	12.7	25.4	25.4	11.6	24.9	2.48 (0.95)
g. Invasive aquatic plants and animals	135	3.5	11	35.8	27.7	22	3.13 (0.81)
h. Habitat alteration harming local fish	111	8.1	12.2	25.6	18.6	35.5	2.85 (0.98)

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	128	14.9	21.3	22.4	14.9	26.4	2.51 (1.03)
b. Discharges from sewage treatment plants	120	16.5	21.6	18.8	11.4	31.8	2.37 (1.03)
c. Soil erosion from construction sites	138	9.7	31.4	29.1	8.6	21.1	2.46 (0.85)
d. Soil erosion from farm fields	132	14.9	27.4	25.1	8	24.6	2.35 (0.92)
e. Soil erosion from shorelines and/or streambanks	146	5.6	18.6	33.3	24.9	17.5	2.94 (0.9)
f. Excessive use of lawn fertilizers and/or pesticides	140	5.6	15.8	32.2	25.4	20.9	2.98 (0.9)
g. Improperly maintained septic systems	113	7.4	16.5	22.2	18.2	35.8	2.8 (0.98)
h. Droppings from geese, ducks and other waterfowl	155	3.9	29.2	36.5	17.4	12.9	2.77 (0.82)
i. Land development or redevelopment	133	5.1	21.5	30.5	18.1	24.9	2.82 (0.88)
j. Urban stormwater runoff	122	7.3	19.8	27.1	14.7	31.1	2.71 (0.92)
k. Removal of riparian vegetation	118	9	13.6	29.4	14.7	33.3	2.75 (0.95)
l. Drainage/filling of wetlands	127	10.2	16.4	23.7	21.5	28.2	2.79 (1.03)

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 (SD)
a. Beach closures	155	37.5	23.3	18.2	9.1	11.9	1.99 (1.03)
b. Contaminated fish	131	24.4	19.3	9.7	21	25.6	2.37 (1.21)
c. Loss of desirable fish species	132	12.4	19.8	22.6	19.8	25.4	2.67 (1.05)
d. Reduced beauty of lakes or streams	159	29.1	30.3	14.9	16.6	9.1	2.21 (1.09)
e. Reduced opportunities for water recreation	148	30.9	26.4	14.6	11.2	16.9	2.07 (1.04)
f. Excessive aquatic plants or algae	143	11.8	27.5	26.4	14.6	19.7	2.55 (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	119	30.8	32.6	19.8	13.4	3.5	1.82 (0.92)
b. Follow pesticide application instructions for lawn and garden	142	17.9	1.2	13.3	21.4	46.2	3.37 (0.8)
c. Use phosphate free fertilizer	126	26.7	6.4	18.6	23.8	24.4	2.9 (0.97)
d. Plant trees/shrubs	148	14.9	1.7	14.4	9.8	59.2	3.49 (0.85)
e. Restore native plant communities	126	25	9.5	28.6	14.9	22	2.66 (1.04)
f. Use improved harvest methods	75	56.4	10.5	16.3	8.1	8.7	2.35 (1.06)
g. Plant vegetated riparian buffer	102	41	42.2	7.5	5.8	3.5	1.5 (0.9)
h. Use porous pavement	107	39.2	26.1	16.5	11.4	6.8	1.98 (1.04)

Specific Constraints of Practices

Follow Fertilizer instructions: Following the manufacturer's instructions when fertilizing lawn or garden

1. How familiar are you with this practice? N=173

- 18.50% Not relevant
- 0.00% Never heard of it
- 12.10% Somewhat familiar with it
- 21.40% Know how to use it; not using it
- 48.00% Currently using it

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

3. Are you willing to try this practice? N=155

- 75.0% Yes or already do
- 18.0% Maybe
- 6.0% 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	131	60.7	9.7	15.9	4.1	9.7	3.4 (0.93)
b. Time required	131	61.4	11.7	13.8	3.4	9.7	3.45 (0.89)
c. Cost	129	48.6	18.3	18.3	5.6	9.2	3.21 (0.97)
d. The features of my property make it difficult	124	58.9	8.2	13.7	4.1	15.1	3.44 (0.93)
e. Insufficient proof of water quality benefit	113	57.3	7.7	12.6	1.4	21.0	3.53 (0.82)
f. Desire to keep things the way they are	135	52.1	7.5	17.1	15.8	7.5	3.04 (1.2)
g. Physical or health limitations	136	61.6	11.6	11.0	8.9	6.8	3.35 (1.02)
h. Hard to use with my farming system	101	68.3	2.2	1.4	.7	27.3	3.9 (0.44)
i. Lack of equipment	113	59.9	9.9	4.9	4.9	20.4	3.57 (0.86)

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

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

1. How familiar are you with this practice?
N=174
- 20.7% Not relevant
 - 4.0% Never heard of it
 - 9.8% Somewhat familiar with it
 - 12.6% Know how to use it; not using it
 - 52.9% Currently using it

3. Are you willing to try this practice? N=140
- 72.1% Yes or already do
 - 12.1% Maybe
 - 15.7% 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	106	76.1	5.1	6	3.4	9.4	3.7 (0.76)
b. Time required	108	76.1	3.4	9.4	3.4	7.7	3.65 (0.81)
c. Cost	110	54.2	11.7	15	10.8	8.3	3.19 (1.1)
d. The features of my property make it difficult	98	73.9	3.5	6.1	1.7	14.8	3.76 (0.67)
e. Insufficient proof of water quality benefit	92	63.7	6.2	8.8	2.7	18.6	3.61 (0.81)
f. Desire to keep things the way they are	102	63.2	2.6	12.3	11.4	10.5	3.31 (1.13)
g. Physical or health limitations	104	74.8	4.3	4.3	7	9.6	3.62 (0.89)
h. Hard to use with my farming system	88	75.5	1.8	0.9	1.8	20	3.89 (0.51)
i. Lack of equipment	95	71.8	2.7	4.5	7.3	13.6	3.61 (0.93)

Wetlands Restoration/Enhancement: Reestablishing or improving a low-lying area of land that is saturated with moisture especially when regarded as the natural habitat of wildlife.

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

—

3. Are you willing to try this practice? N=134

34. % Yes or already do

38. % Maybe

26. % No

1. How familiar are you with this practice?
N=164
- 23.2% Not relevant
 - 14.0% Never heard of it
 - 39.0% Somewhat familiar with it
 - 15.9% Know how to use it; not using it
 - 7.9% Currently using it

<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	102	40	8.7	27	13	11.3	2.85 (1.16)
b. Time required	98	42	10.1	21	9.2	17.6	3.03 (1.11)
c. Cost	96	33.6	9	18.9	17.2	21.3	2.75 (1.22)
d. The features of my property make it difficult	99	40.3	6.7	12.6	23.5	16.8	2.77 (1.32)
e. Insufficient proof of water quality benefit	86	58.4	4.4	6.2	7.1	23.9	3.5 (0.99)
f. Desire to keep things the way they are	106	62.1	6	8.6	14.7	8.6	3.26 (1.17)
g. Physical or health limitations	106	63.8	5.2	13.8	8.6	8.6	3.36 (1.05)
h. Hard to use with my farming system	81	62.6	2.6	1.7	3.5	29.6	3.77 (0.73)
i. Lack of equipment	86	47	3.5	12.2	12.2	25.2	3.14 (1.2)

Vegetated Streambank/Shoreline

Protection: Maintaining vegetation that grows along streams, rivers or lakes acts as a protective buffer between the land and the water to reduce runoff and sediments flowing into the water.

1. How familiar are you with this practice?
 N=164
 18.9% Not relevant
 7.3% Never heard of it
 40.9% Somewhat familiar with it
 19.5% Know how to use it; not using it
 13.4% Currently using it

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

3. Are you willing to try this practice? N=127
 45.7% Yes or already do
 32.3% Maybe
 22.0% 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	87	49.5	14.3	11.4	7.6	17.1	3.28 (1.02)
b. Time required	89	50	15.7	9.3	7.4	17.6	3.31 (1)
c. Cost	83	44.9	14	7.5	11.2	22.4	3.19 (1.11)
d. The features of my property make it difficult	102	42.2	6.9	11.2	27.6	12.1	2.73 (1.34)
e. Insufficient proof of water quality benefit	85	61.3	1.9	9.4	7.5	19.8	3.46 (1.03)
f. Desire to keep things the way they are	97	62	6.5	10.2	11.1	10.2	3.33 (1.1)
g. Physical or health limitations	99	63.6	8.2	8.2	10	10	3.39 (1.05)
h. Hard to use with my farming system	78	61.3	1.9	4.7	5.7	26.4	3.62 (0.91)
i. Lack of equipment	84	53.7	4.6	8.3	11.1	22.2	3.3 (1.14)

Making Decisions for my Property

In general, how much does each of these issues limit your ability to change your water management 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	143	24.7	20.7	28	22	4.7	2.5 (1.11)
b. The need to learn new skills or techniques	134	31	24.1	29	8.3	7.6	2.84 (1)
c. Not having access to the equipment I need	132	25.5	22.1	26.9	16.6	9	2.62 (1.08)
d. Lack of available information about a practice	128	32.9	17.9	25.7	15	8.6	2.75 (1.12)
e. No one else I know is implementing the practice	105	48.6	11.4	7.9	7.1	25	3.35 (1.01)
f. Approval of my neighbors	123	66.2	7.9	8.6	5.8	11.5	3.52 (0.92)
g. Legal restrictions on my property	104	47.9	8.6	9.3	8.6	25.7	3.29 (1.08)
h. Do not know where to get information and-or assistance about those practices	122	35.7	18.6	23.6	9.3	12.9	2.93 (1.05)
i. Environmental damage caused by the practice	97	43.8	8	12.4	6.6	29.2	3.26 (1.05)
j. Concerns about resale value	121	52.5	9.9	12.1	11.3	14.2	3.21 (1.12)
k. Not being able to see a demonstration of the practice before I decide	113	37.7	21	12.3	10.9	18.1	3.04 (1.07)
l. 12. Other {please specify}	2	100	0	0	0	0	4 (0)

About You

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

N=180

93.3 Male
6.7 Female

2. What is your gender?

N=178

67.4 Male
32.6 Female

3. What is your age?

N=175

27 – 97 Range
68.5 Average
11.6 Standard Deviation

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

N=171

0.6 Some formal schooling
24.0 High school diploma / GED
13.5 Some college
9.9 2 year college degree
21.1 4 year college degree
31.0 Post-graduate degree

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

N=179

21.8 ¼ acre or less
20.7 More than ¼ acre but less than 1 acre
21.8 1 acre to less than 5 acres
35.8 5 acres or more

6. Do you own or rent your home?

N=178

100.0 Yes
0.0 No

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

N=167

1 – 75 Range
29.76 Mean
14.69 Standard Deviation

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

N=179

39.1 In a town, village, or city
39.7 In an isolated, rural, non-farm residence
13.4 Rural subdivision or development
7.8 On a farm

9. In addition to your residence, which of the following do you own or manage (check all that apply)?

N=176

6.2 An agricultural operation
19.9 Forested Land
13.1 Rural recreational property
70.5 None of these

10. Do you use a professional lawn care service?

N=177

9.0 Yes, just for mowing
2.3 Yes, for mowing and fertilizing
7.9 Yes, just for fertilizing and pest control
6.8 Yes, for mowing, fertilizing, and pest control
74.0 No

11. Where are you likely to seek information about soil and water conservation issues? (Check all that apply)?

N=176

53.4 **Newsletters**/brochure/factsheet
46.0 **Internet**
6.8 **Radio**
19.3 **Workshops**/demonstrations/meetings
39.8 **Conversations** with others
12.5 Trade publications/**magazines**
13.1 **None** of the Above

12. What type of residence do you own/rent on your property?

N=175

65.7 Primary residence
22.3 Secondary (seasonal)
3.4 Both primary and secondary
8.6 I don't own-rent a residence in the watershed

13. What portion of the year do you live on your property?

N=126

52.4 Year round
10.3 6 – 11 months
15.1 3 – 5 months
7.9 Less than 3 months
14.3 Occasionally

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. Local watershed project	136	5.1	3.2	19.6	58.2	13.9	3.52 (0.83)
b. Local government	148	7.6	17.8	39.5	29.3	5.7	2.96 (0.91)
c. U.S. Environmental Protection Agency	143	9.6	14.1	33.3	34.6	8.3	3.01 (0.98)
d. University Extension	152	6.8	5.6	24.8	57.1	5.6	3.4 (0.89)
e. State agricultural agency	135	9.7	11.6	31.6	34.2	12.9	3.04 (0.99)
f. State environmental agency	137	9	18.7	28.4	32.3	11.6	2.95 (0.99)
g. Environmental groups	145	12.7	21.5	26.6	31	8.2	2.83 (1.05)
h. Local garden center	139	15.5	25.8	36.8	11.6	10.3	2.5 (0.93)
i. Lawn care company	137	28.8	28.8	25.6	4.5	12.2	2.07 (0.91)
j. Local community leader	136	24.5	29	27.1	7.1	12.3	2.19 (0.94)
k. Neighbors / friends	148	11.3	27.7	42.1	11.9	6.9	2.59 (0.86)
l. Other landowners / friends	137	13.2	12.6	24.5	35.8	13.8	2.96 (1.09)
m. Little Traverse Bay Bands of Odawa	121	26.6	16.2	24	11.7	21.4	2.26 (1.09)
n. Tip of the Mitt Watershed Council	143	7	10.1	22.2	51.3	9.5	3.3 (0.95)
o. Conservation Organizations	145	7.5	17.5	34.4	31.2	9.4	2.99 (0.94)
p. Local Conservation District	142	7.5	13.2	28.3	40.3	10.7	3.13 (0.96)

Septic Systems

1. Do you have a septic system?

N=174
29.3 No
0.6 Don't Know
70.1 Yes

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

N=99
1914 – 2019 Range
1988 Average

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

N=153
6.5 Slow Drains
1.3 Sewage backup in house
3.9 Bad smells near tank or drain field
0.7 Sewage on the surface
0.0 Sewage flowing to ditch
0.7 Frozen septic
1.3 Other
88.2 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=151
15.9 Yes
71.5 No
12.6 Don't know

5. Does your septic system have an absorption field (finger system)?

N=145
59.3 Yes
17.2 No
23.4 Don't Know

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

N=156
25.0 Yes
50.6 No
24.4 Don't Know

7. Do you know the location of your septic tank and drainfield?

N=136
91.2 Yes
5.1 No
3.7 Don't Know

8. Do you have a septic system permit on file with the Health Department?

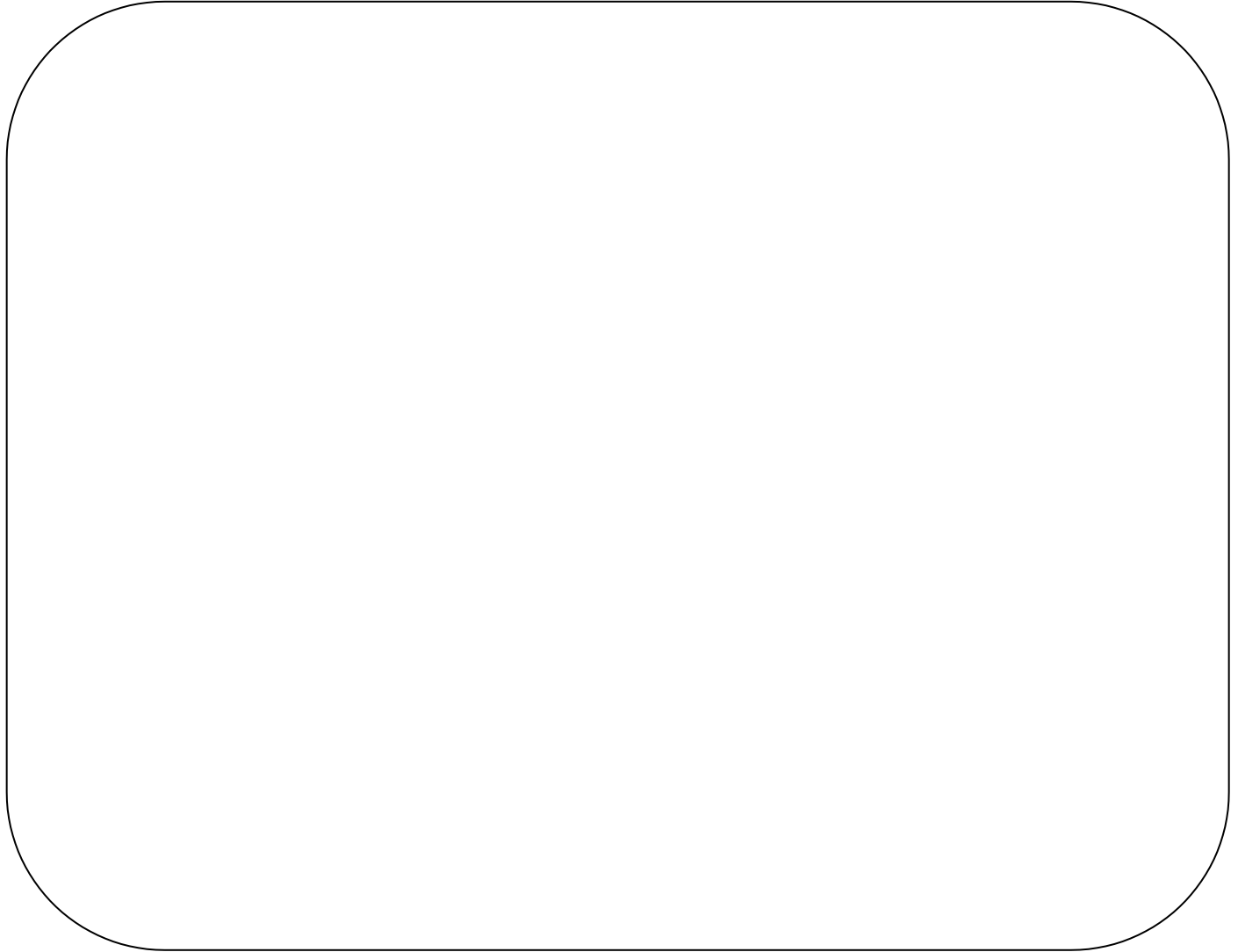
N=138
49.3 Yes
9.4 No
41.3 Do not know

9. Do you pump your septic system regularly?

N=136
71.3 Yes
26.5 No
2.2 Do not 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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