

# Honey Creek Social Survey Report 2017



## Honey Creek Survey Results

The Huron River Watershed Council sent this survey out in September-November 2017 to 726 residents of the Honey Creekshed in Ann Arbor and Scio Township.

The purpose of the survey was to find out what Honey Creek residents think about their water resources, how and why they value them, and if they are willing to change their behavior to protect their local water. The survey also assessed recipients' knowledge and applicable behaviors for properly managing E.coli waste from pets and septic systems. There are 2625 households in this creekshed. However, since one of our goals was to get information on septic waste management among residents, we reduced the sample size by eliminating parcel areas that are in Ann Arbor because those households are connected to a sewer system (no septic systems). The adjusted sample size was reduced to 1175 households.

The questions are designed to identify:

- The level of concern about pollution;
- Individual actions that contribute to nonpoint source pollution;
- Residents knowledge/beliefs about:
  - Connections between improper pet waste disposal and pollution;
  - Connections between septic tank management and pollution;
- Individual characteristics and barriers to behavior change;
- Trusted sources of information;
- Preferred method(s) for receiving information.

The Social Indicator Planning and Evaluation System (SIPES) protocols for nonpoint source management and the Social Indicator Data Management and Analysis tool was used to develop and implement the survey using a five-wave mailing process. The second wave, which was sent on October 4 and included the survey, had a \$1 bill attached to the cover letter. This served as a token gift to inspire recipients to complete the survey.

Number of recipients mailed	726
Undeliverable/Returned to sender	102
Total surveys received in mail	624
Surveys mailed in	161
Online surveys filled out	47
Number of incomplete surveys submitted or responded to say they do not want to participate (responses not entered)	7
Total number of responses	214
Number of complete Surveys	207
<b>Total Response Rate (Among those that received the survey. Includes incomplete but submitted surveys)</b>	<b>34%</b>
<b>Confidence rating</b>	<b>95% confidence with +/- 6.2% error level (90% confidence with 5.2% error level)</b>

The 34% response rate is under the project's response rate goal of 40%.

For more information on the survey, please contact:

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## Key Findings

- Over 85% of respondents have attended college, own their own property, and are over 49 years old.
- Most respondents recognize the connections between stormwater runoff and local tributaries. Overall, they feel responsible for doing their part to protect water and most feel that they already do activities to address this responsibility.
- Over half would be willing to pay more taxes or fees to improve water quality and change their behavior to protect water. More than 90% connect healthy water in rivers, lakes and streams with a higher quality of life in their communities. Respondents care about their local water sources.
- While many recognize a variety of impairments to water quality, there was a higher level of uncertainty as to the severity of these impairments.
- Most said they clean up after their pet (dogs) and maintain their septic tanks.
- There were very few constraints to practices that improve water quality, specifically disposing of pet waste and maintaining septic systems.
- In general, respondents have a good level of awareness of water quality issues. Their willingness to take actions to improve water quality is high and their constraints to adopting various water protection practices are low. Current behaviors for using the practices are claimed to be high.

## Demographics

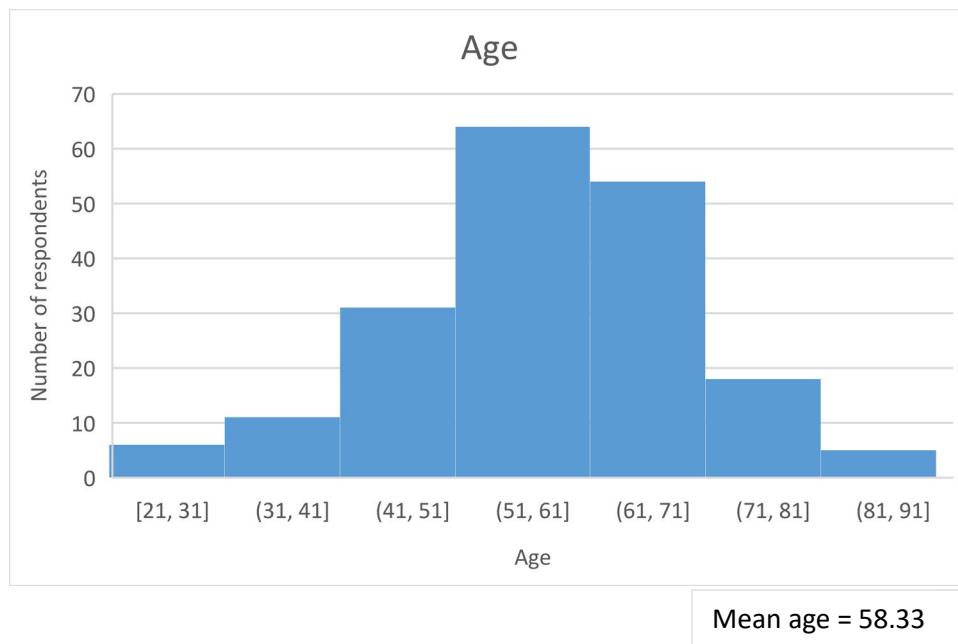
### Summary

The majority of respondents are college educated seniors (62+) with more males (54.7%) responding than females (45.3).

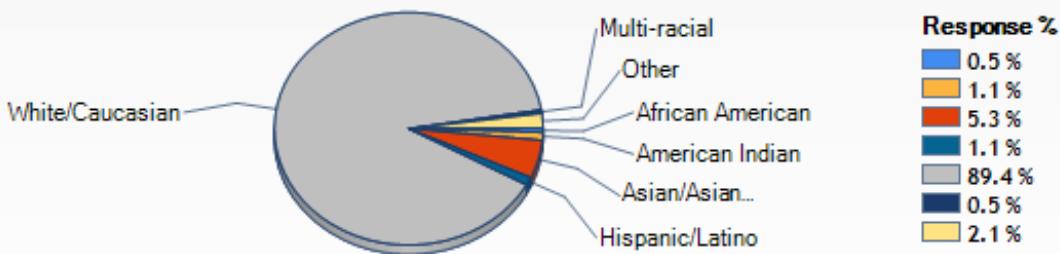
The level of education for this area is high with 80.5% of respondents who have earned a 4-yr (32%) or post graduate degree (48.5%). According to the US Census Bureau, for the Scio Township, 69.7% of the population has a Bachelor's Degree or higher. It is possible that those who are more educated are more likely to have completed and submitted the survey.

About 89% of respondents are white/Caucasian and 5%, the second most popular ethnicity, are Asian/Asian-American or Pacific Islander. The US Census Bureau, for the Scio Township shows a 78.7% estimate for those are white in 2018. This is less than the 89% of respondents who said there are white/Caucasian.

For this survey, we reduced the sample area by removing those who use the Ann Arbor sewer system. By removing this more densely populated area, we may have reduced the number of recipients who have less education or those who are more ethnically diverse than the Census Bureau's figures.

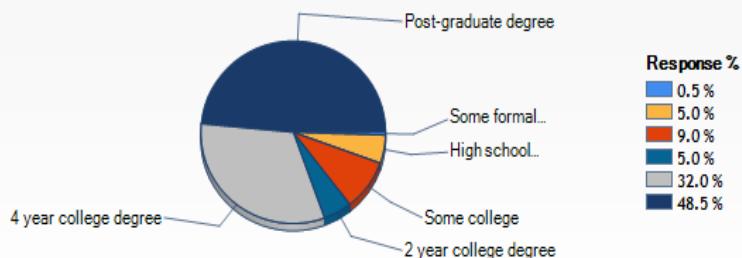


## What is your ethnicity?



Responses: 189

## What is the highest grade in school you have completed?



Responses: 200

## Residences and Property Ownership

### Summary

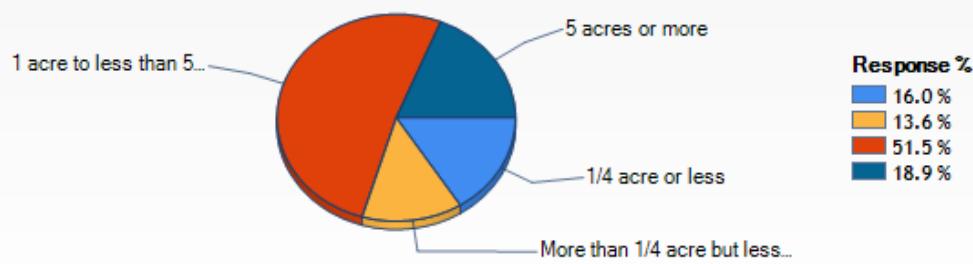
Almost all (99.5%) of the respondents own their home and most (88.8%) of the respondents make decisions about their property. Most (84%) have yards larger than  $\frac{1}{4}$  acre with about half living on 1-5 acre lots and 19% living on 5 or more acres. About half consider their homes to be in rural subdivisions. About a quarter (24%) say they live in a rural area and another 20% say they live in a town or village. Only 2.5% say they live on a farm.

More than half (64%) have lived in their homes for more than 27 years and 31% have lived in their homes for less than 13 years. The average length of residence (mean) is 19.22 years. Most residents are settled and most likely know their area (local stores, parks, weather, and roads) very well.

72% of the respondents said they have a septic system (150 out of 207 households). All but one respondent owns their property. Among the group of 150 with septic systems on their property, 85 (57%) are male and 60 (40%) are female (5 didn't answer). Each of the 85 male respondents who have a septic system said they make home and lawncare decisions. Of the 60 female respondents who said they have a septic system, 48 (80%) said they make home and lawncare decisions. The 1 respondent who said she rented the property also said she makes the lawncare decisions. She is included in the tally of females who have a septic system (she is one of the 60).

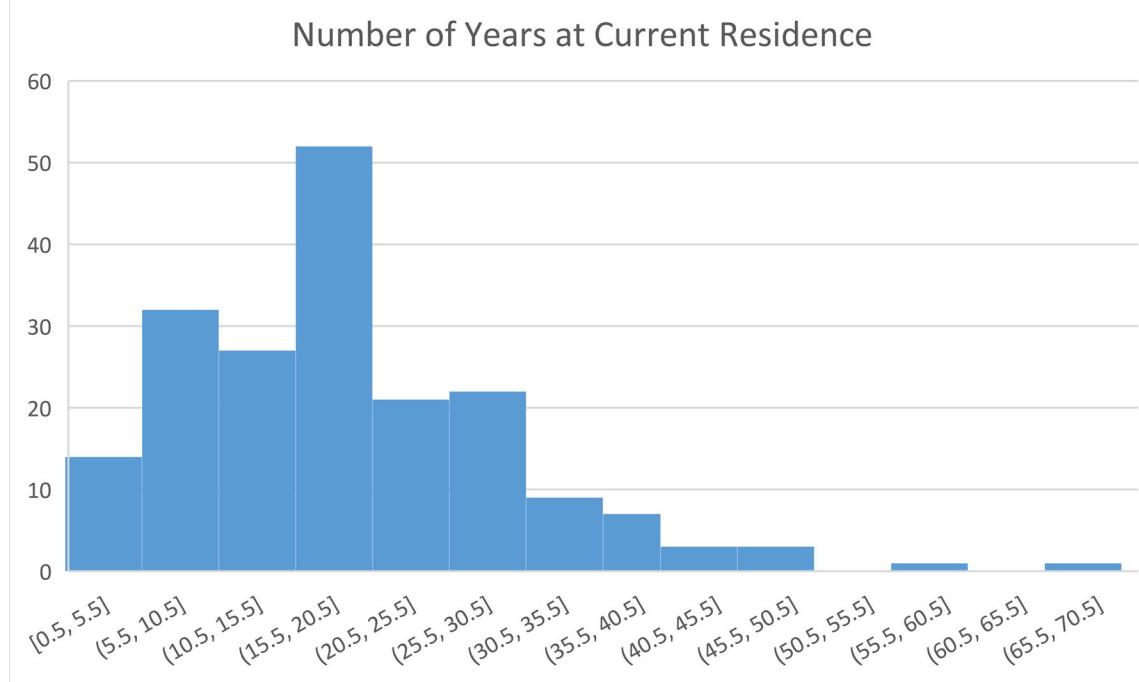
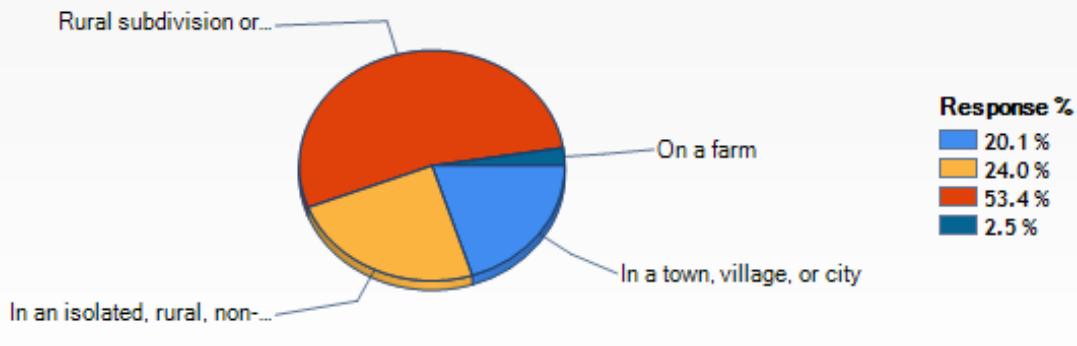
Since 99% of those who said they have a septic system are property owners, outreach materials need to frame messages that speak to ownership benefits. For example, property owners are responsible for paying for maintenance. Messaging should highlight that it is much less costly to maintain their septic system since the alternative is replacement, which is very expensive.

### What is the approximate size of your residential lot?



Responses: 206

## Which of the following best describes where you live?



## Sources of Information

### Summary

While approximately half of the respondents say they read local news regularly, more than half say they get news about water quality from newsletters/brochures and the Internet. Slightly less than half get news from talking with others. Even fewer get news about water quality from the radio or newspapers.

The most trusted sources of information about water quality are University Extension, Watershed Project, Soil and Water Conservation District and the County Health Department. Less trusted sources are local leaders, word of mouth, Land Trusts, and state environmental agencies. Overall, respondents have “moderate trust” in the EPA and nonprofit environmental groups.

Sources for information about water quality that respondents use by age grouping:

Row Labels	Count of AGE	NEWSLETTER	INTERNET	RADIO	WORKSHOP/DEMO	CONVERSATIONS	NEWSPAPER/MAGAZINES	NONE
21-30	4	75%	100%	75%	25%			50%
31-40	11	27%	82%	9%	36%	20%	36%	9%
41-50	29	62%	79%	28%	7%	7%	45%	7%
51-60	59	73%	64%	24%	36%	19%	46%	5%
61-70	62	68%	66%	29%	50%	11%	60%	3%
71-80	17	82%	77%	24%	35%	17%	41%	6%
81-90	7	43%	14%	29%	43%	29%	43%	14%
Grand Total	189	67%	68%	50%	26%	14%	49%	5%

The most effective vehicles to use for communicating with those who are over 40 years old are newsletters and the Internet. For the under 50 audience, there is a stronger preference for the Internet.

Count of AGE	Col ▾	No	Yes	(blank)	Grand Total
Row Labels	▼				
(blank)					
21-30		2	2		4
31-40		6	5		11
41-50		15	14		29
51-60		29	30		59
61-70		31	30	1	62
71-80		8	9		17
81-90		3	4		7
Grand Total		94	94	1	189

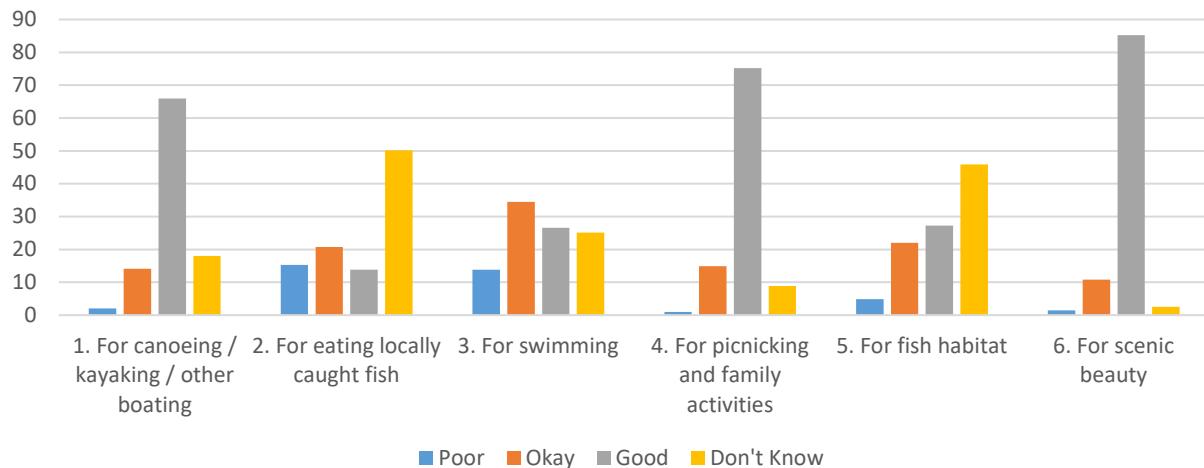
To the left are results for respondents who do or do not read a local newspaper. The responses are similar, with roughly half saying they read local newspapers, across all age groups. Those who said yes, especially among the younger audience, might be reading news on the Internet and responding yes to reading newspapers here because they consider paper and digital “newspapers” the same.

## Rating of Water Quality

### Summary

Most respondents rated their water quality for scenic beauty (85%), picnicking and family activities (75%), and canoe/kayak/boating (65.9) as good, the highest rating available. About 67% said the water was okay or good for swimming and 25% said they weren't sure. About half said they didn't know how the water quality is for fish habitat and for eating fish. 14-15% said that the water quality is poor for eating locally caught fish and swimming. The standard deviation was highest for eating fish, meaning answers were most spread out for this question. In other words, people had the most varied opinions when it comes to eating locally caught fish.

Rating of Water Quality



## Rating of Water Quality

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

Question # ↓↑	Poor (1) ↓↑	Okay (2) ↓↑	Good (3) ↓↑	Don't Know (9) ↓↑	Mean (SD) ↓↑	Valid Responses ↓↑ / Total Responses ↓↑
1. For canoeing / kayaking / other boating	2	14.1	65.9	18	2.78 (0.47)	168 / 205
2. For eating locally caught fish	15.3	20.7	13.8	50.2	1.97 (0.77)	101 / 203
3. For swimming	13.8	34.5	26.6	25.1	2.17 (0.72)	152 / 203
4. For picnicking and family activities	1	14.9	75.2	8.9	2.82 (0.42)	184 / 202
5. For fish habitat	4.9	22	27.3	45.9	2.41 (0.65)	111 / 205
6. For scenic beauty	1.5	10.8	85.2	2.5	2.86 (0.39)	198 / 203

## Your Water Resources

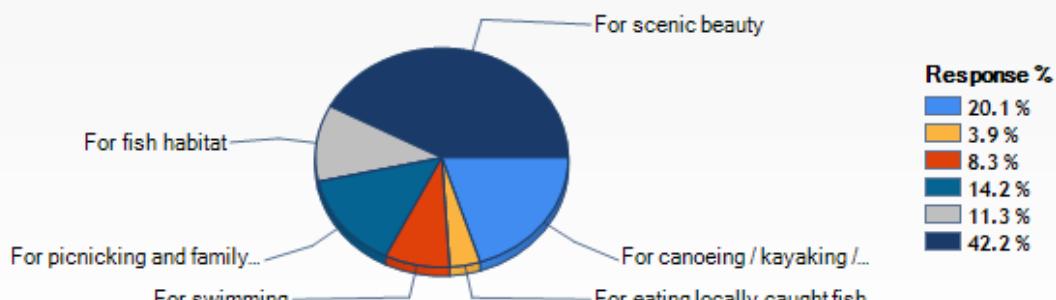
### Summary

The questions related to activities that scored highest on water quality (scenic beauty, picnicking and boating) also scored highest for what is most important to people.

Most (98%) answered that they know where stormwater goes, 82% correctly identified creeks, river, and wetlands. A few (15%) only mentioned immediate areas like detention ponds or into the ground. Very few (3%) mentioned sewers. Stormwater is not treated in this area.

Most people in this area seems to have a general knowledge of the connections between stormwater and local tributaries.

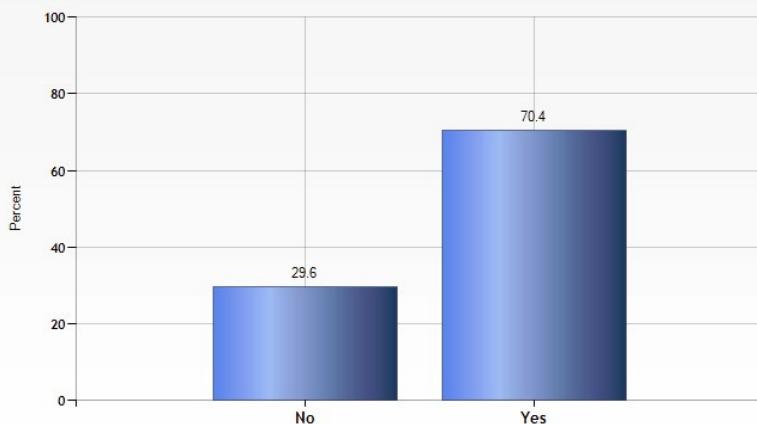
### Of these activities, which is the most important to you?



Responses: 204

### Do you know where the rain water goes when it runs off of your property?

Responses: 203



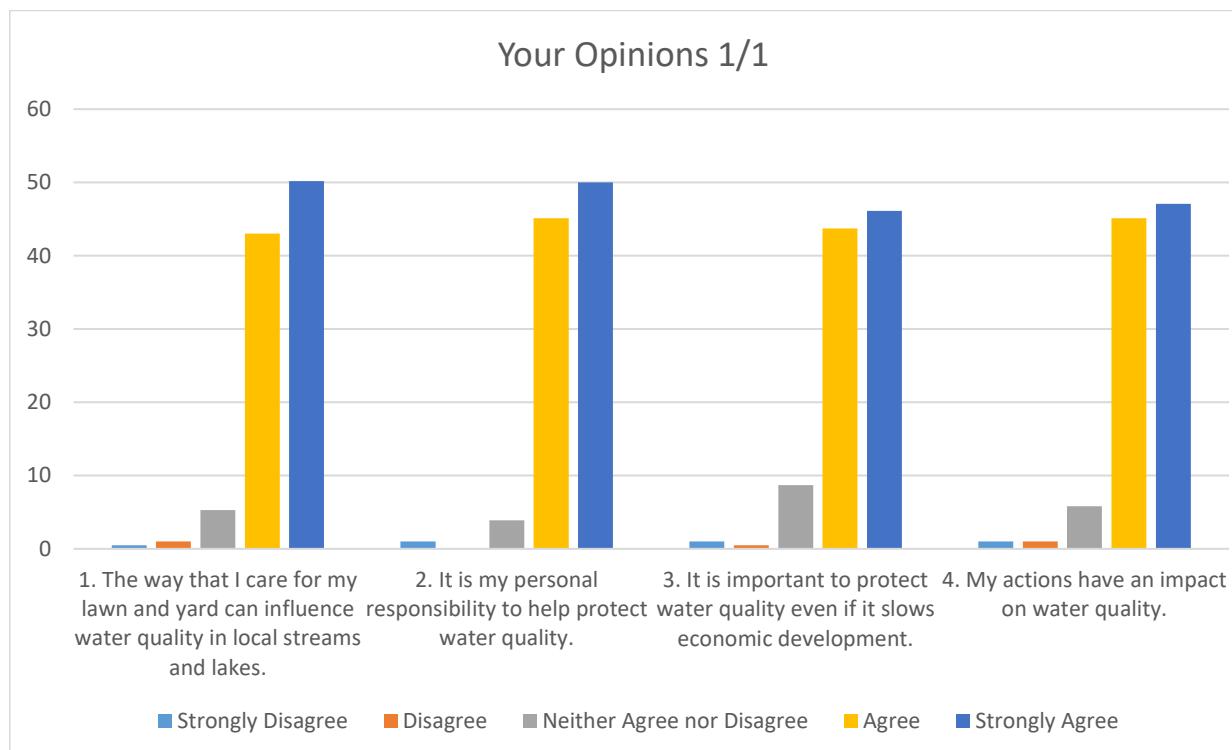
## Summary

Just over 95% of respondents believe that it is their personal responsibility to help protect water and 93% of them agree that the way they care for their lawns can influence water quality. Over 90% believe the quality of life in their community depends on good water quality and 89% think that it's important to protect water even if this slows economic growth.

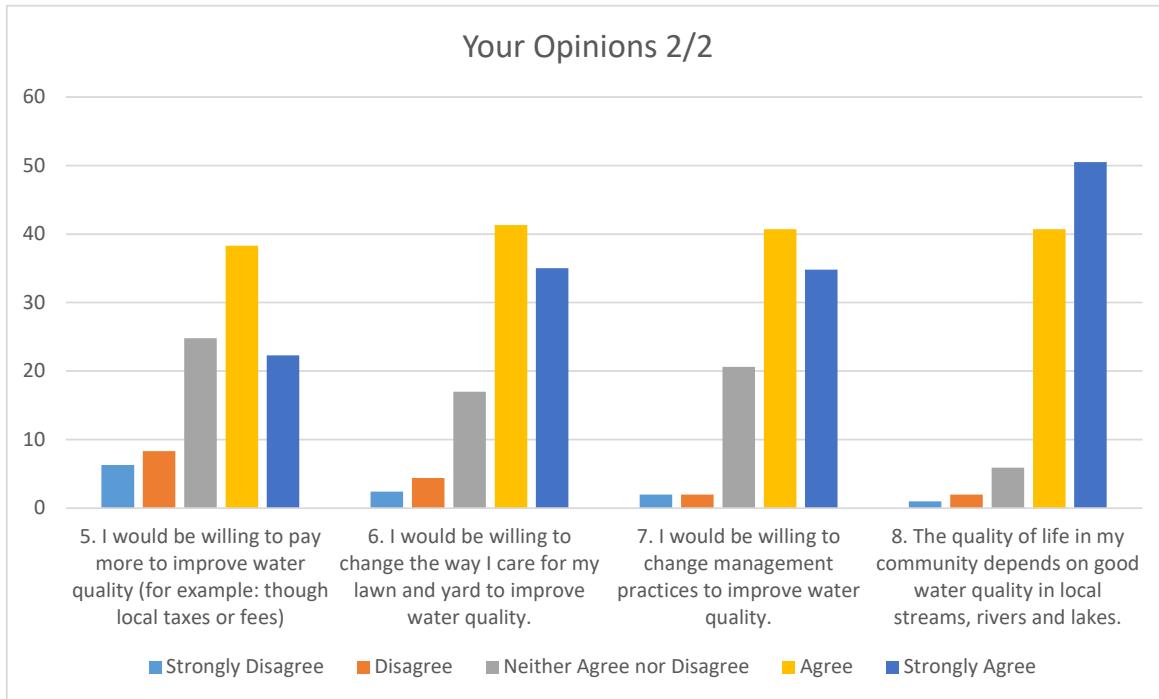
However, the numbers start shifting when respondents were asked about making personal changes. A lower rate (76%) are willing to change the way they care for their lawn and 61% said they were willing to pay more (taxes or fees) to improve water quality.

That said, it is noteworthy that more than half of respondents expressed willingness to do more and pay more for better water quality. For those less willing, many think they are already doing what they can to protect water quality. For example, 94% of those who agree or strongly agree that they are willing to change their management practices to improve water quality also say that they currently inspect their septic system for size and condition.

## Opinions



## Opinions



I would be willing to change Management practices to improve WQ (1 strongly disagree, 5 Strongly agree)

Inspect Septic for size and condition

Count of

HCLIPOUTFAM

Column Labels

Row Labels	1	2	3	4	9 (blank)	Grand Total
1		1		1		2
3		1		5	2	8
4	6	12	7	44	24	93
5	3	12	6	56	23	102
(blank)					1	1
<b>Grand Total</b>	<b>9</b>	<b>26</b>	<b>13</b>	<b>106</b>	<b>50</b>	<b>206</b>
	never heard of it	somewhat familiar	know how, not using	know how and using it	not relevant	

## Your Opinions

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

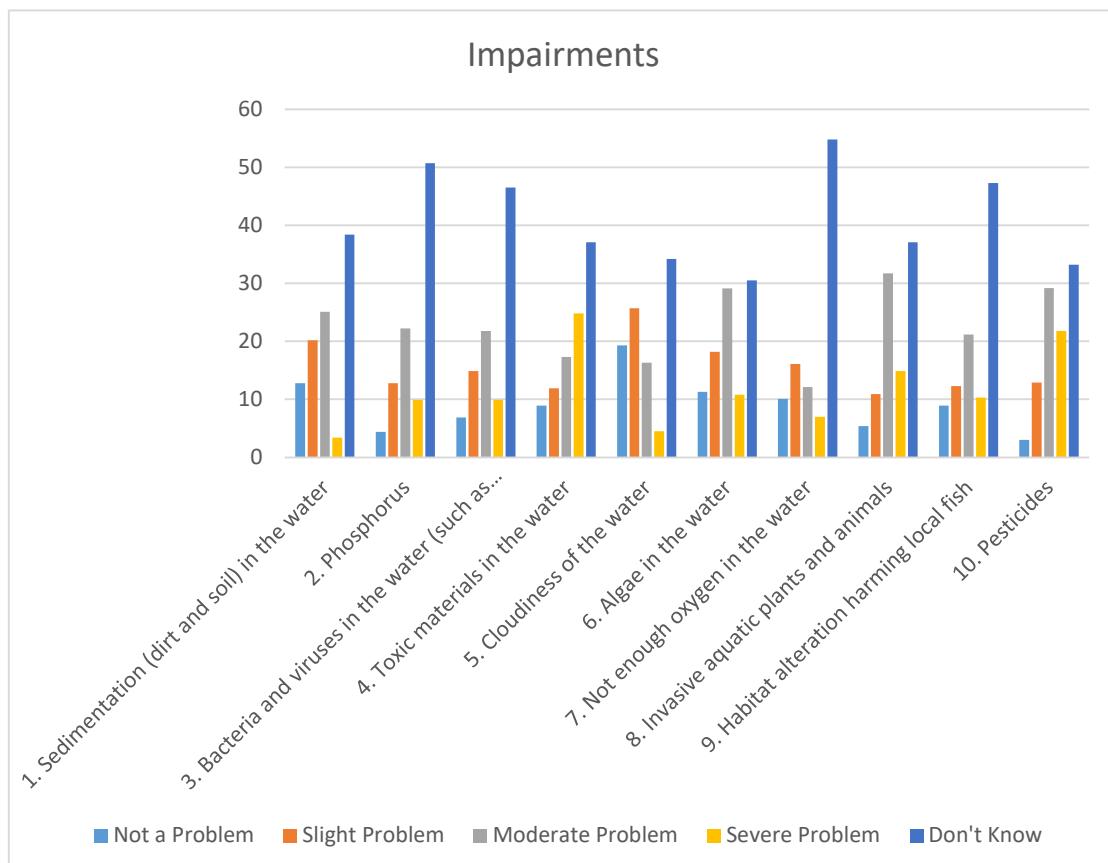
Question # ↓↑	Strongly Disagree (1) ↓↑	Disagree (2) ↓↑	Neither Agree nor Disagree (3) ↓↑	Agree (4) ↓↑	Strongly Agree (5) ↓↑	Mean ↓(SD) ↑	Valid Responses ↓ / Total Responses ↓↑
1. The way that I care for my lawn and yard can influence water quality in local streams and lakes.	0.5	1	5.3	43	50.2	4.42 (0.68)	207 / 207
2. It is my personal responsibility to help protect water quality.	1	0	3.9	45.1	50	4.43 (0.66)	206 / 206
3. It is important to protect water quality even if it slows economic development.	1	0.5	8.7	43.7	46.1	4.33 (0.74)	206 / 206
4. My actions have an impact on water quality.	1	1	5.8	45.1	47.1	4.36 (0.72)	206 / 206
5. I would be willing to pay more to improve water quality (for example: though local taxes or fees)	6.3	8.3	24.8	38.3	22.3	3.62 (1.11)	206 / 206
6. I would be willing to change the way I care for my lawn and yard to improve water quality.	2.4	4.4	17	41.3	35	4.02 (0.96)	206 / 206
7. I would be willing to change management practices to improve water quality.	2	2	20.6	40.7	34.8	4.04 (0.9)	204 / 204
8. The quality of life in my community depends on good water quality in local streams, rivers and lakes.	1	2	5.9	40.7	50.5	4.38 (0.77)	204 / 204

## Water Impairments

### Summary

The top three rated impairments to water quality were pesticides, toxic materials, and invasive aquatic plants and animals. During the time of this survey, there were stories on the news about the Dioxane 1,4 plume, which is in the area. There were also stories about the algal blooms in Lake Erie from agricultural sources. Therefore, it makes sense for respondents to cite these issues as the top problems with water quality. For all these top-rated impairments, however, fewer than 25% of respondents classified them as a 'Severe Problem.' The largest response to all issues was "Don't Know."

While almost half said they did not know, and 22% said that bacteria and viruses are not a problem or a slight problem; our field research identified *E.coli* as a major issue for Honey Creek. Most respondents' perceptions of pathogen pollution don't match actual conditions. Education on this topic is needed and will likely be effective since the baseline of awareness is low for this issue.



## 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?*

Question # ↓↑	Not a Problem (1) ↓↑	Slight Problem (2) ↓↑	Moderate Problem (3) ↓↑	Severe Problem (4) ↓↑	Don't Know (9) ↓↑	Mean ↓↑ (SD) ↓↑	Valid Responses ↓↑ / Total Responses ↓↑
1. Sedimentation (dirt and soil) in the water	12.8	20.2	25.1	3.4	38.4	2.31 (0.87)	125 / 203
2. Phosphorus	4.4	12.8	22.2	9.9	50.7	2.76 (0.88)	100 / 203
3. Bacteria and viruses in the water (such as E.coli / coliform)	6.9	14.9	21.8	9.9	46.5	2.65 (0.93)	108 / 202
4. Toxic materials in the water	8.9	11.9	17.3	24.8	37.1	2.92 (1.07)	127 / 202
5. Cloudiness of the water	19.3	25.7	16.3	4.5	34.2	2.09 (0.9)	133 / 202
6. Algae in the water	11.3	18.2	29.1	10.8	30.5	2.57 (0.94)	141 / 203
7. Not enough oxygen in the water	10.1	16.1	12.1	7	54.8	2.36 (1)	90 / 199
8. Invasive aquatic plants and animals	5.4	10.9	31.7	14.9	37.1	2.89 (0.87)	127 / 202
9. Habitat alteration harming local fish	8.9	12.3	21.2	10.3	47.3	2.63 (0.99)	107 / 203
10. Pesticides	3	12.9	29.2	21.8	33.2	3.04 (0.84)	135 / 202

## Sources of Water Pollution

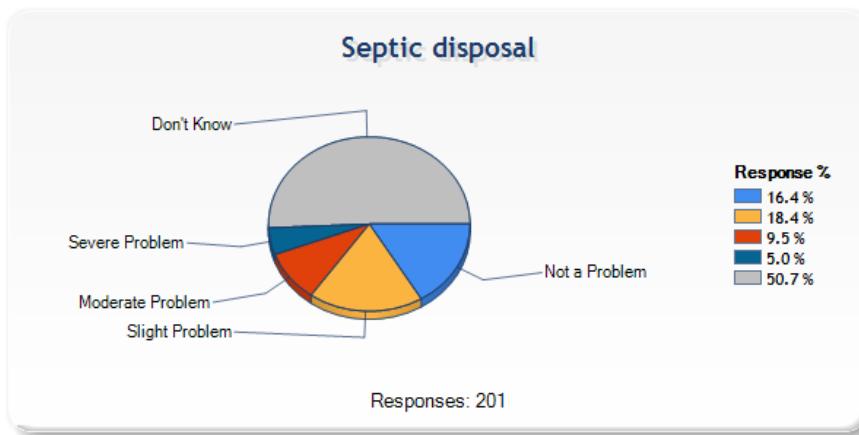
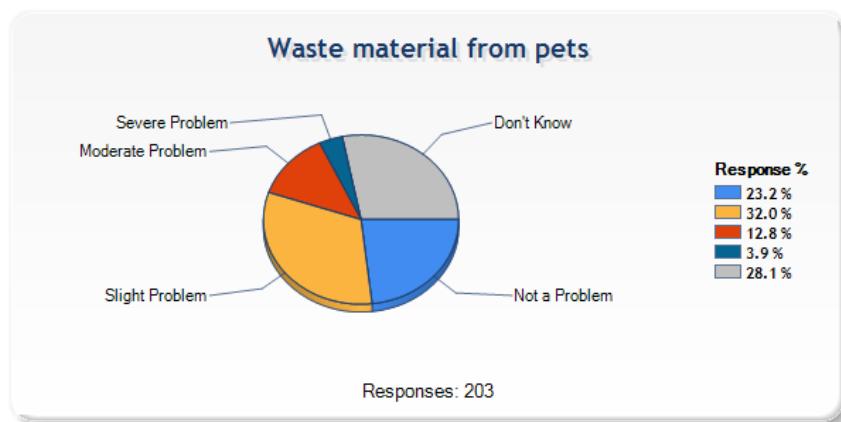
### Summary

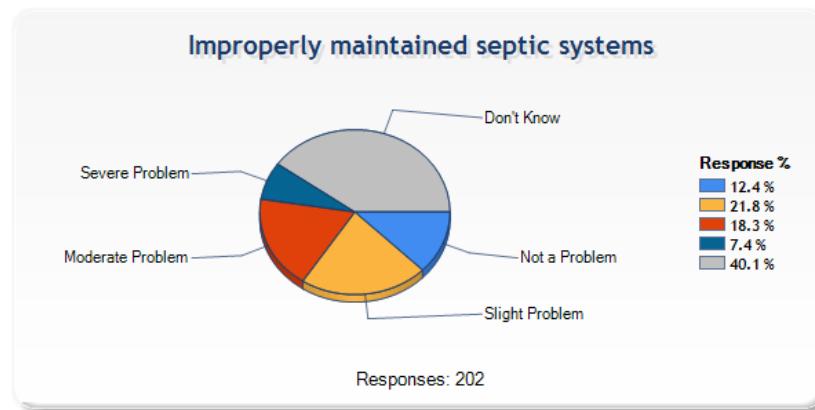
When given a list of sources of water pollution (impairments) and asked how much of a problem they are locally, the largest responses were “Don’t Know,” except for wildlife, and grass clippings and leaves entering the storm drains. For these two impairments, 2-12% more said “Not a Problem” as those who said “Don’t Know.”

The top three identified sources of pollution are droppings from geese, street stormwater runoff, and manure from farm animals. For all these top-rated impairments, fewer than 14% of respondents classified them as a Severe Problem and more than half said they are not a problem, a slight problem or they don’t know.

Most don’t know the magnitude of impairments from septic tanks or they do not consider them to be more than a slight problem. About half either don’t know or don’t think pet waste is contaminating the water either. Given that our field testing showed *E.coli* in areas where there are pets (not farm animals) and septic waste as being key sources of pollution for this area, there is clearly a need to educate residents on the causes and issues of bacterial contamination in their creekshed.

There are a lot of geese and other waterfowl in this area.





## 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?*

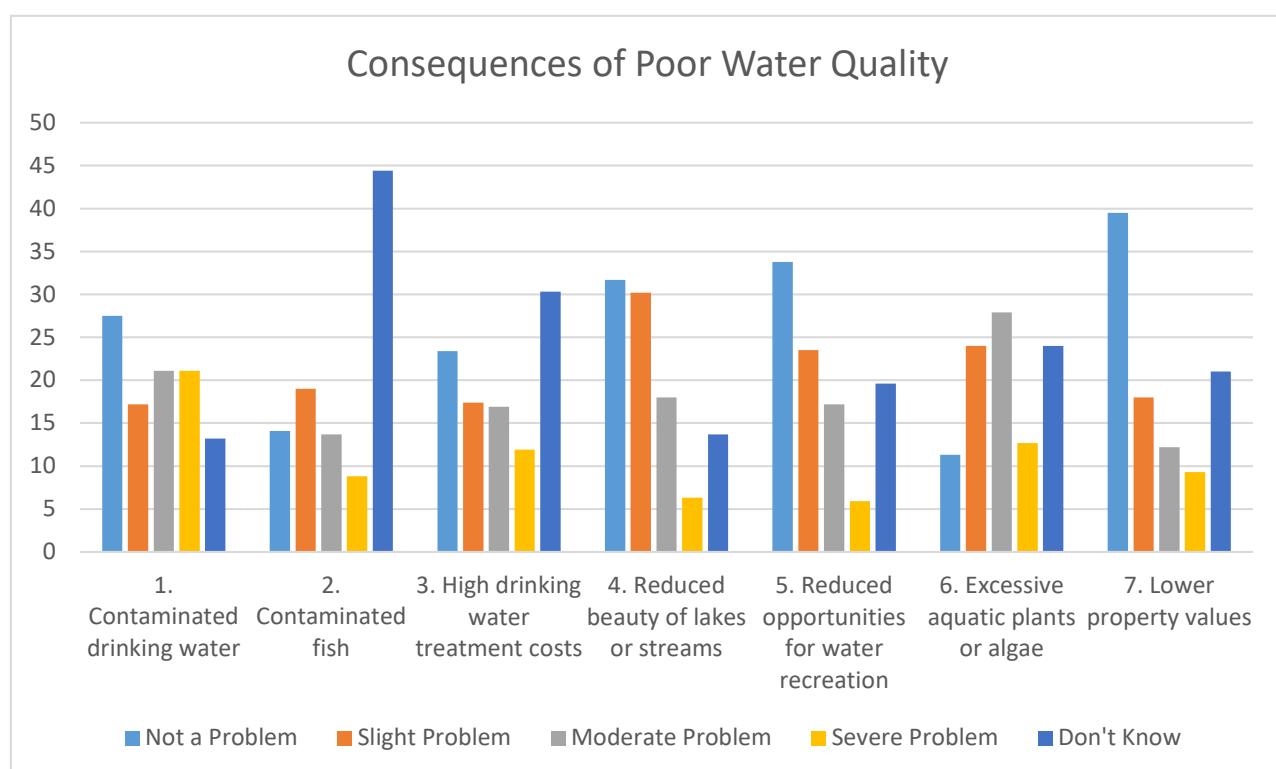
Question # ↓↑	Not a Problem (1) ↓↑	Slight Problem (2) ↓↑	Moderate Problem (3) ↓↑	Severe Problem (4) ↓↑	Don't Know (9) ↓↑	Mean ↓↑ (SD) ↓↑	Valid Responses ↓↑ / Total Responses ↓↑
1. Grass clippings and leaves entering storm drains	31.3	21.9	15.4	3	28.4	1.86 (0.9)	144 / 201
2. Improperly maintained septic systems	12.4	21.8	18.3	7.4	40.1	2.35 (0.95)	121 / 202
3. Manure from farm animals	14.3	21.7	15.8	13.8	34.5	2.44 (1.05)	133 / 203
4. Stormwater runoff from rooftops and/or parking lots	15.5	21.5	23.5	9.5	30	2.39 (0.98)	140 / 200
5. Stormwater runoff from streets and/or highways	13.9	17.3	28.7	10.9	29.2	2.52 (0.98)	143 / 202
6. Droppings from geese, ducks and other waterfowl	12.8	23.6	27.6	13.8	22.2	2.54 (0.97)	158 / 203
7. Waste material from pets	23.2	32	12.8	3.9	28.1	1.97 (0.85)	146 / 203
8. Urban stormwater runoff	18.2	13.3	19.7	11.8	36.9	2.4 (1.1)	128 / 203
9. Residential stormwater runoff	16.8	18.8	24.3	6.9	33.2	2.32 (0.97)	135 / 202
10. Illegal hook-ups for urban runoff	19.3	9.9	4.5	5	61.4	1.87 (1.06)	78 / 202
11. Septic disposal	16.4	18.4	9.5	5	50.7	2.06 (0.97)	99 / 201
12. Waste storage/storage tank leaks (above ground)	18.9	12.9	8	3.5	56.7	1.91 (0.97)	87 / 201
13. Waste storage/storage tank leaks (underground)	12.8	12.8	11.8	6.9	55.7	2.29 (1.05)	90 / 203
14. Wildlife	42.6	18.6	6.9	1	30.9	1.51 (0.73)	141 / 204

## Consequences of Poor Water Quality

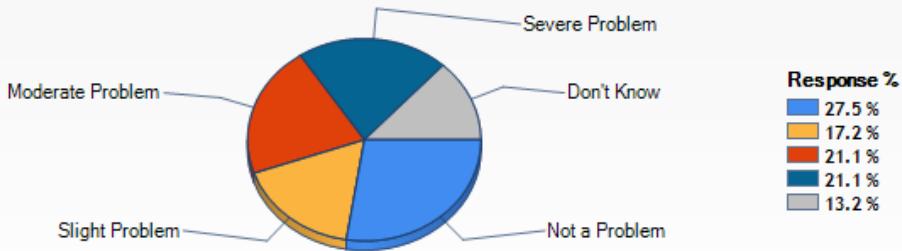
### Summary

Respondents' opinions on how their drinking water is affected by poor water quality vary widely. Most respondents classify contaminated drinking water as being the most consequential issue of lower water quality followed by algae. That said, 28% of respondents said there are "no problems" with contaminated drinking water in their area while 42% say that there is a moderate or severe issue with it. In general, respondents are less concerned with scenic beauty, recreation opportunities or property value suffering from lower water quality.

In SE Michigan there has been news coverage of algal blooms in Lake Erie and this may be affecting respondents concern with algae. The underground dioxane plume issue has also been covered by the news as a potential threat to drinking water, and the news covered the Rover pipeline spill as well. The survey was sent out at the end of 2017 and the news coverage for these issues was extensive that year. The demographic data show that many respondents pay attention to the news.



## Contaminated drinking water



Responses: 204

## 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?*

Question # ↓↑	Not a Problem (1) ↓↑	Slight Problem (2) ↓↑	Moderate Problem (3) ↓↑	Severe Problem (4) ↓↑	Don't Know (9) ↓↑	Mean ↓ (SD) ↑ ↓↑	Valid Responses ↓ / Total Responses ↑
1. Contaminated drinking water	27.5	17.2	21.1	21.1	13.2	2.41 (1.17)	177 / 204
2. Contaminated fish	14.1	19	13.7	8.8	44.4	2.31 (1.02)	114 / 205
3. High drinking water treatment costs	23.4	17.4	16.9	11.9	30.3	2.25 (1.1)	140 / 201
4. Reduced beauty of lakes or streams	31.7	30.2	18	6.3	13.7	1.99 (0.94)	177 / 205
5. Reduced opportunities for water recreation	33.8	23.5	17.2	5.9	19.6	1.94 (0.96)	164 / 204
6. Excessive aquatic plants or algae	11.3	24	27.9	12.7	24	2.55 (0.94)	155 / 204
7. Lower property values	39.5	18	12.2	9.3	21	1.89 (1.06)	162 / 205

## Practices to Improve Water Quality

### Summary

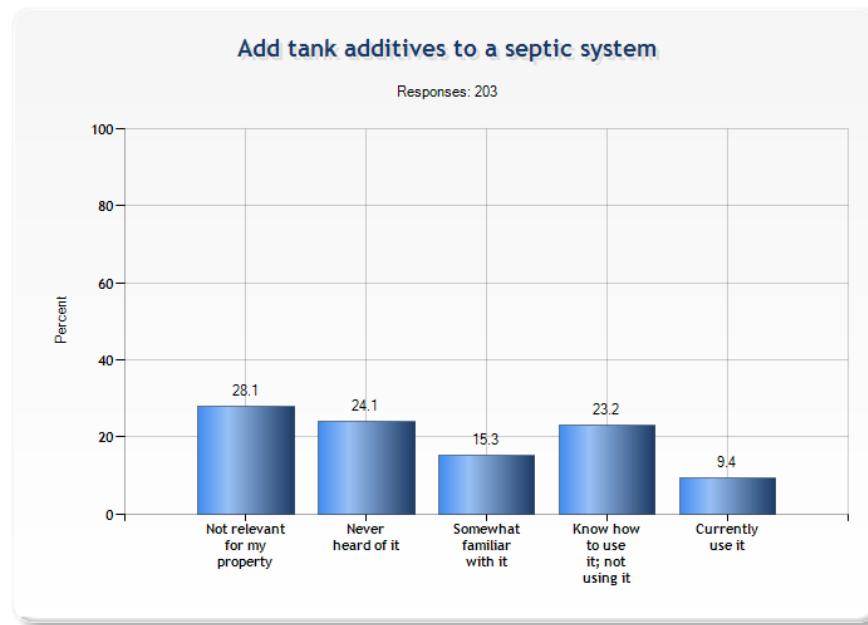
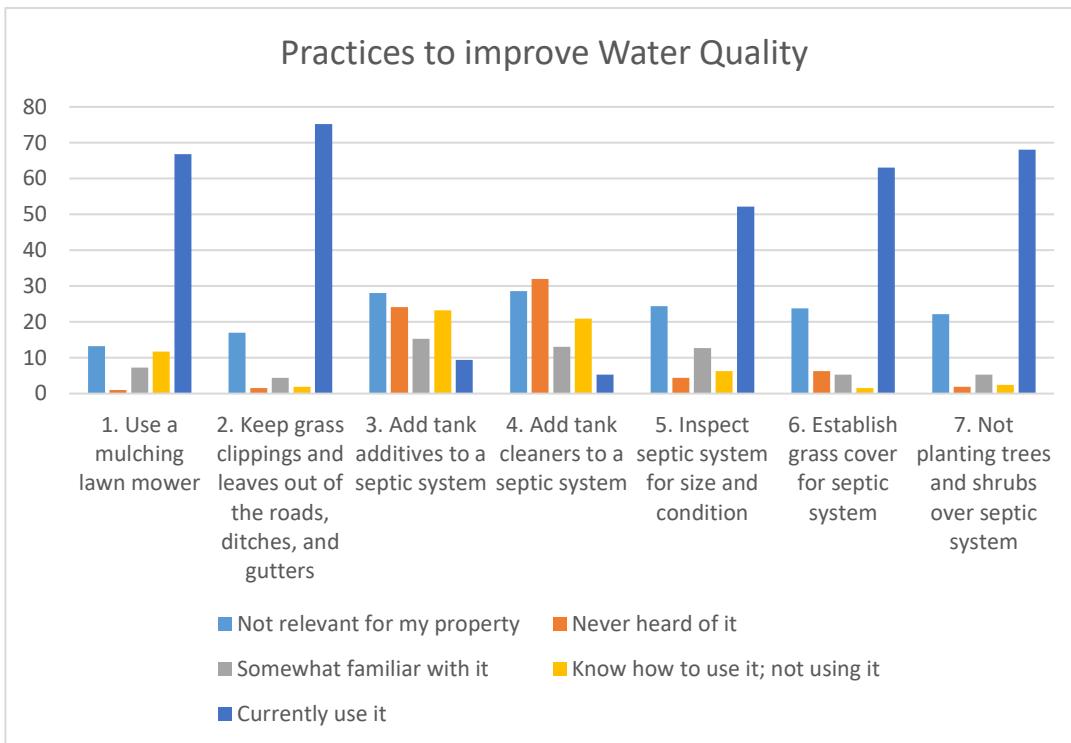
Most respondents use a mulching lawn mower (67%) and keep lawn debris out of the roads (75%) and most of the rest for these categories say the practice is not relevant. There is less of a need to educate property owners in this area to take on these practices.

Among those who answered in a way that indicated they have a septic tank, more than two thirds inspect them (69%), establish a ground cover over them (83%), and avoid planting trees and shrubs over them (88%). For practices such as adding tank additives and cleaners to a tank system, most people said they either never heard of them or know how to use them but do not. Fewer than 10% use them. Any education about septic tanks should highlight facts about these products. For example, mention that any claims about additives or cleansers making pumping unnecessary are false.

## Practices to Improve Water Quality

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

Question # ↓↑	Not relevant for my property (9) ↓↑	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) ↓↑	Valid Responses ↓ / Total Responses ↓↑
1. Use a mulching lawn mower	13.2	1	7.3	11.7	66.8	3.66 (0.68)	178 / 205
2. Keep grass clippings and leaves out of the roads, ditches, and gutters	17	1.5	4.4	1.9	75.2	3.82 (0.6)	171 / 206
3. Add tank additives to a septic system	28.1	24.1	15.3	23.2	9.4	2.25 (1.06)	146 / 203
4. Add tank cleaners to a septic system	28.6	32	13.1	20.9	5.3	1.99 (1.02)	147 / 206
5. Inspect septic system for size and condition	24.4	4.4	12.7	6.3	52.2	3.41 (0.96)	155 / 205
6. Establish grass cover for septic system	23.8	6.3	5.3	1.5	63.1	3.59 (0.94)	157 / 206
7. Not planting trees and shrubs over septic system	22.2	1.9	5.3	2.4	68.1	3.76 (0.69)	161 / 207

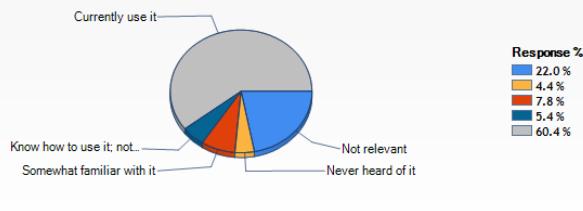


## Septic System Servicing

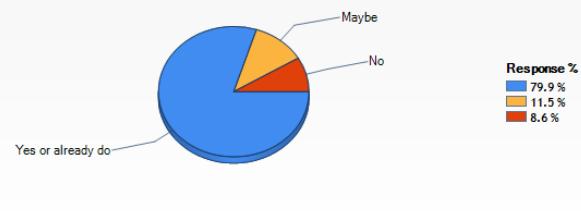
### Summary

Respondents were asked if they knew about servicing their septic tanks and what constraints they have in doing so. A large majority responded that they are familiar with the practice, already do it, and have few constraints to servicing their tanks. Almost half (47%) said cost is not an issue but it was the highest-ranking constraint. For those who said the practice was not relevant, the reason given was not having a septic tank (except for one respondent who said his or her "septic system is double sized for property-never had a problem," and possibly another who said "we have a grinder and it is serviced by multi-lakes.") According to survey results, most respondents believe they are taking care of their septic tanks.

#### How familiar are you with this practice?



#### Are you willing to try this practice?



#### How much do the following factors limit your ability to implement this practice?

Question # ↓↑	Not at all (4) ↓↑	A little (3) ↓↑	Some (2) ↓↑	A lot (1) ↓↑	Don't Know (9) ↓↑	Mean ↓↑ (SD) ↓↑	Valid Responses ↓↑ / Total Responses ↓↑
4. Don't know how to do it	72.3	4.4	4.4	5	13.8	3.67 (0.82)	137 / 159
5. Time required	61	12.6	6.9	5.7	13.8	3.5 (0.9)	137 / 159
6. Cost	46.5	15.1	13.2	11.9	13.2	3.11 (1.11)	138 / 159
7. The features of my property make it difficult	68.4	7	3.8	5.7	15.2	3.63 (0.86)	134 / 158
8. Insufficient proof of water quality benefit	65.4	6.3	6.9	5.7	15.7	3.56 (0.91)	134 / 159
9. Desire to keep things the way they are	72.3	3.8	5	5	13.8	3.66 (0.83)	137 / 159
10. Physical or health limitations	77.1	3.2	3.2	2.5	14	3.8 (0.64)	135 / 157
11. Hard to use with my farming system	77.2	0.6	0.6	0.6	20.9	3.95 (0.33)	125 / 158
12. Lack of equipment	71.5	3.2	4.4	2.5	18.4	3.76 (0.69)	129 / 158

## Pet Waste Disposal

### Summary

Most respondents said they have few constraints to picking up waste and 43% said the practice is not relevant to them. Most (71%) said they already pick up their pet's waste or are willing to, 15% said they might be willing to try it, and 13.8% said they were not willing to try it.

Of the 19 people who said they were not willing to do the practice, 15 (80%) said it was not relevant to them.

There were 16 respondents (12% of respondents) who did not check the not "not relevant" box and said they were not using the practice, were only somewhat familiar with it, or have never heard of it—and said they are willing to try the practice. Therefore, there is a population that will likely change behavior with education about proper waste disposal, an ordinance and associated fines, and if they have access to an easy way to do it.

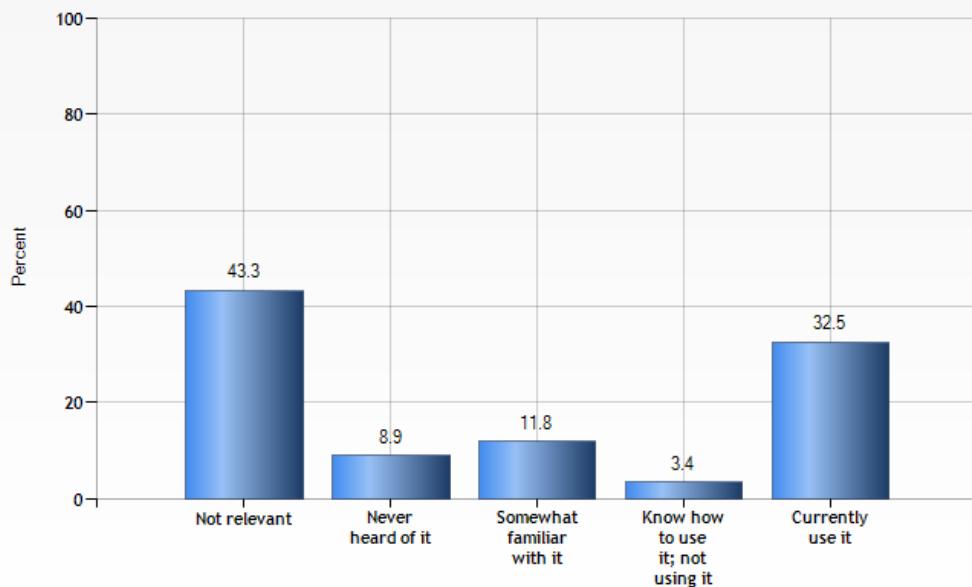
### Pet Waste Disposal Familiarity of Practice and Willingness to try Practice

9=not relevant

Count of HPETWASTEUSE	Column Labels				Grand Total
	1	2	3	(blank)	
Row Labels					
1	2	7	6		15
2		7	13		20
3	1	2	4		7
4	1		62		63
9	15	5	13		33
(blank)					
<b>Grand Total</b>	<b>19</b>	<b>21</b>	<b>98</b>	<b>138</b>	
	no	Maybe	yes or already do		willing to try?

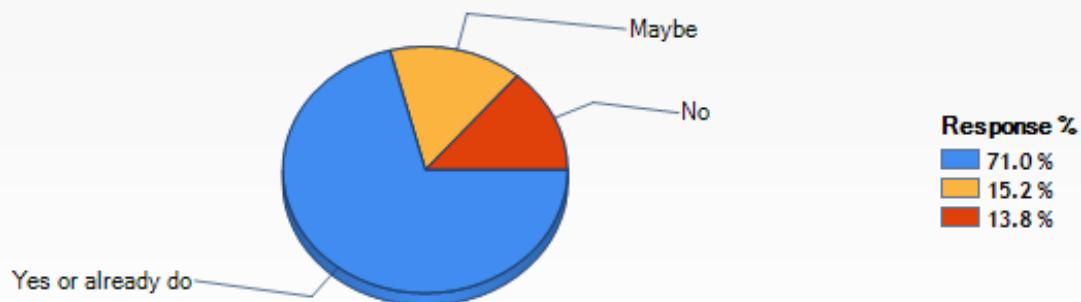
### How familiar are you with this practice?

Responses: 203



### Are you willing to try this practice?

Responses: 138



*How much do the following factors limit your ability to implement this practice?*

Question # ↓↑	Not at all (4) ↓↑	A little (3) ↓↑	Some (2) ↓↑	A lot (1) ↓↑	Don't Know (9) ↓↑	Mean ↓↑ (SD) ↓↑	Valid Responses ↓↑ / Total Responses ↓↑
16. Don't know how to do it	70.2	6.1	4.6	5.3	13.7	3.64 (0.85)	113 / 131
17. Time required	66.2	10	6.2	2.3	15.4	3.65 (0.73)	110 / 130
18. Cost	74.4	4.7	3.9	0.8	16.3	3.82 (0.54)	108 / 129
19. The features of my property make it difficult	77.2	3.1	3.1	0.8	15.7	3.86 (0.5)	107 / 127
20. Insufficient proof of water quality benefit	70	7.7	3.1	1.5	17.7	3.78 (0.6)	107 / 130
21. Desire to keep things the way they are	73.6	7	4.7	3.9	10.9	3.69 (0.77)	115 / 129
22. Physical or health limitations	80.5	2.3	3.1	0.8	13.3	3.87 (0.49)	111 / 128
23. Hard to use with my farming system	82.5	1.6	0.8	0	15.1	3.96 (0.23)	107 / 126
24. Lack of equipment	79.5	2.4	2.4	0.8	15	3.89 (0.46)	108 / 127

## Indicator Scores

The results below represent the scores (mean) for the survey on various social indicators.

### Awareness of Appropriate Practices to Improve Water Quality

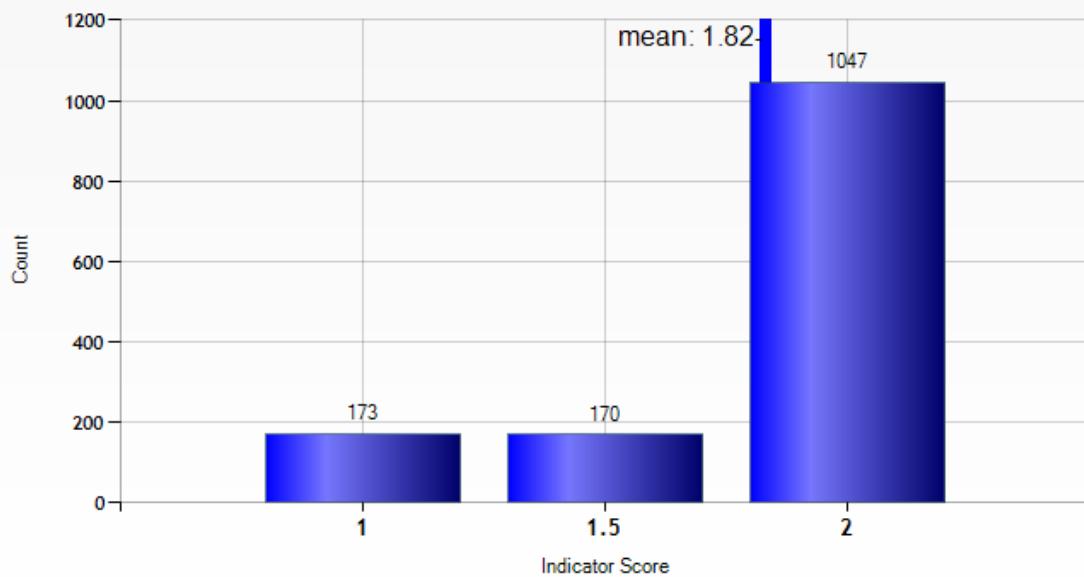
This indicator score factors re-coded and weighted averages of mean scores from the questions: "Practices to Improve Water Quality" and each "How Familiar are You with the Practice" (septic and pet waste) in the Constraints section. The value range is 1-2, with 1 being less aware and 2 more aware.

#### Summary

Respondents are highly aware of proper management practices for improving water quality when it comes to maintaining septic tanks and disposing pet waste.

#### 1.4. Awareness of appropriate practices to improve water quality

Honey Creek Survey responses: 1,390



## Awareness of Appropriate Practices to Improve Water Quality: e.Coli/Septics

For these indicator scores, the Water Impairment topic was narrowed to “Bacterial and viruses in the water (such as E.coli/coliform) and the Sources of Pollution selected were narrowed to: “Improperly maintained septic systems” and “Septic disposal.”

AWARENESS						
Ind. #	Indicator	Mean	SD	Valid Responses	Total Responses	View Graph
1.1	Awareness of consequences of pollutants to water quality (value range 1-2, less aware - more aware)	<i>Must identify Key Questions for the Consequences of Poor Water Quality category before calculating for this indicator.</i>				
1.2	Awareness of types of pollutants impairing waterways (value range 1-2, less aware - more aware)	1.73	0.36	108	202	Bar graph
1.3	Awareness of sources of pollutants impairing waterways (value range 1-2, less aware - more aware)	1.55	0.39	220	403	Bar graph
1.4	Awareness of appropriate practices to improve water quality (value range 1-2, less aware - more aware)	1.82	0.34	1,390	1,846	Bar graph

The awareness of e.Coli pollution from septic systems is high, and there is a very high level of the appropriate practices to improve water quality as they relate to septic systems. Key messaging for this target area should focus on field research to let them know that there is e.Coli pollution from human sources in this area to encourage them to inspect their septic systems. For most, if they see a problem, they will fix it.

## Attitudes

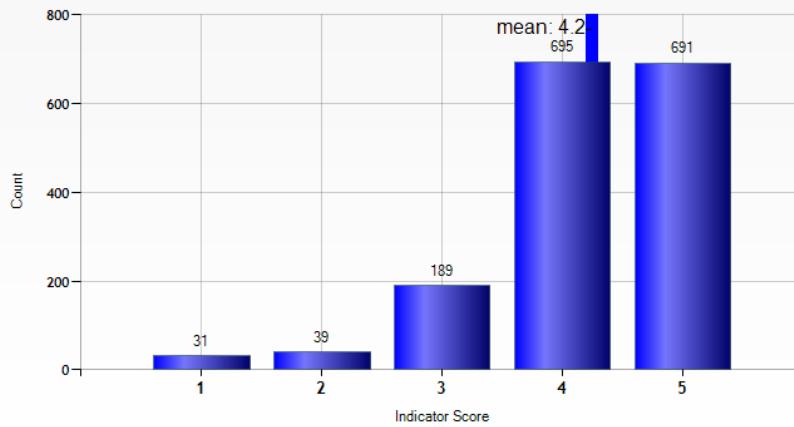
These indicator scores factor mean scores for “Your Opinion and Specific Constraints” questions. The value range is 1-5 and 1-2, with 1 being less positive and 5 (2 for the second result) being most positive.

### Summary

Most respondents have a positive attitude toward behaviors that protect water quality and are willing to take action.

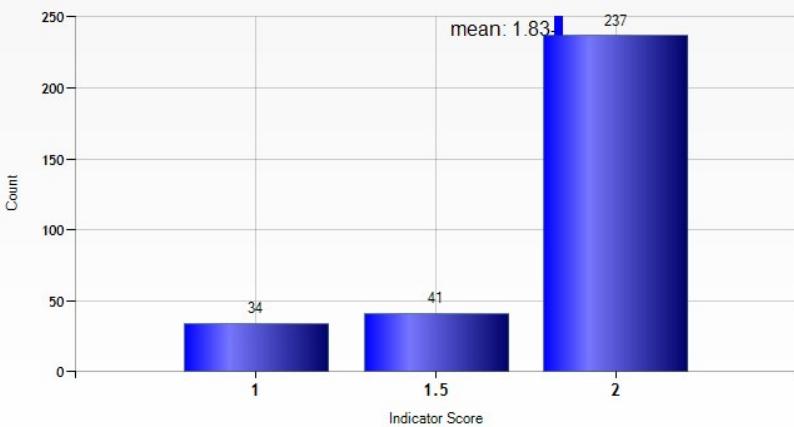
#### 2.1. General water-quality-related attitudes

Honey Creek Survey responses: 1,645



#### 2.2. Willingness to take action to improve water quality

Honey Creek Survey responses: 312



## Attitudes/e.Coli

These indicator scores factor mean scores for “Your Opinion and Specific Constraints” questions. The value range is 1-5 and 1-2, with 1 being less positive and 5 (2 for the second result) being most positive.

For these indicator scores, the Water Impairment topic was narrowed to “Bacterial and viruses in the water (such as E.coli/coliform) and the Sources of Pollution selected were narrowed to: “Improperly maintained septic systems” and “Septic disposal.”

ATTITUDES						
Ind. #	Indicator	Mean	SD	Valid Responses	Total Responses	View Graph
2.1	General water-quality-related attitudes (value range 1-5, less positive - more positive)	4.2	0.87	1,645	1,645	<a href="#">Bar graph</a>
2.2	Willingness to take action to improve water quality (value range 1-2, less positive - more positive)	1.83	0.33	312	312	<a href="#">Bar graph</a>

When the indicator score data was narrowed to just bacteria and viruses in the water and sources from septic systems, the results were the same as for all categories, meaning they have positive attitudes toward water quality and are willing to take action when it comes to maintaining their septic systems.

When the Sources of Pollution focused on pet waste, the scores were the same.

## Constraints

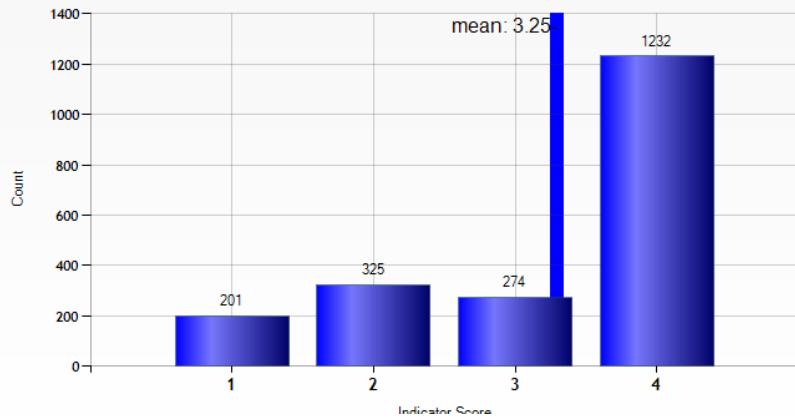
These indicator scores factors mean scores from “Making Decisions for my Property” and “Constraints to Adopting Key Practices” questions. The value range is 1-4, with 1 being more constrained and 4 being less constrained.

### Summary

Most respondents are willing and able to maintain their septic tanks and properly dispose of their pet waste.

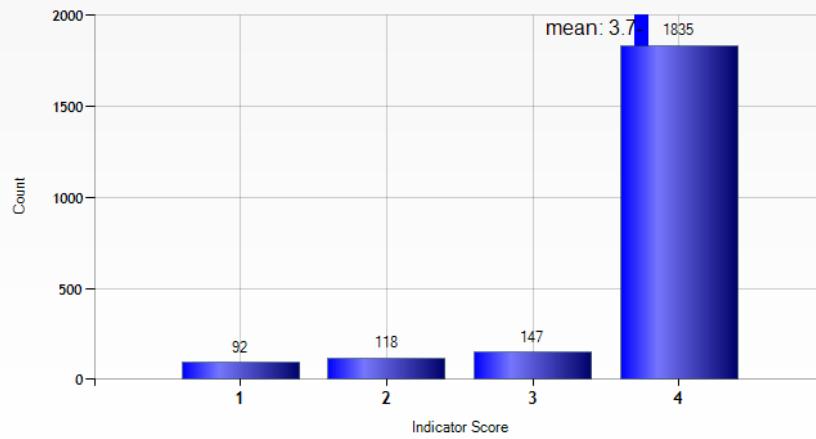
#### 3.1. Constraints to behavior change

Honey Creek Survey responses: 2,032



#### 3.2. Constraints to adopting key practices

Honey Creek Survey responses: 2,192



## Additional Comments

### Summary

Out of the 51 comments, 12 mention concerns of the Dioxane plume and other underground contamination. The rest of the comments were more spread out and covered complaints about the survey, expressing gratitude for local water and those who work to protect it, and more information about what they do to protect it.

See Appendix for all comments

### Discussion, Recommendations and Conclusion

For most, the aspects of water quality that are important to them, such as scenic beauty and recreation, the condition of water quality is good. Almost all respondents connect their actions with the quality of water and they understand the connections between stormwater runoff and waterways. They also have a strong sense of responsibility and are willing to change behavior to protect water, and they do not have a lot of constraints to action.

When respondents rated the severity of impairments, the most common response was “don’t know.” Given that our field research has identified *E.coli* as a major issue for Honey Creek and respondents do not know that this problem is a primary issue for their area, educational messaging should highlight the evidence while offering actionable steps they can take to address them.

The sources to deliver these messages need to be sources they trust: council, county/local authorities (not state or federal) in newsletters, brochures, and online. Since half of them still read local newspapers, there are also outreach opportunities in earned and paid media placements.

On educational materials, HRWC should focus on its status as a council rather than a nonprofit environmental group. Sending materials in the mail and reaching out digitally are good ways to reach this target area.

## Appendix

<b>Please use the space below for any additional comments about this survey or water resources in your community.</b>
My family and I are incredibly upset about the rover pipeline, especially after finding out that a day or two ago there was {and still is} contaminated water leaking into the watershed. Absolutely uncalled for and irresponsible. The amount of forest that has been cut down around silver lake is also upsetting, in addition to the fact that this pipeline closes off all exits of the lake. Because of fertilizers people use on their lawn, there is more algae growing in the lake, which is causing lots of the seaweed to grow. Algae decreases the amount of oxygen available to organisms, and we do not want to lose the many important species we have in the lake.
Please consult someone with survey writing experience. I want to help you any way possible, but this survey was unnecessarily lengthy, wordy and unclear at times.
We are greatly concerned about dioxin and the Gelman Science fiasco. The State of Michigan has failed us by not requiring immediate action to clean up and has allowed higher than recommended levels to the extreme. This issue is a greater concern than any other concern as the plume is approaching the river. Its sickening.
This is a very nice area to live. We have pretty good water with the exception of the Gelman-Pall plume. People here are more environmentally conscious and responsible than in many other areas of the state-country. Thank you for your continued efforts!
I guess I am less concerned about my septic field and more concerned about catastrophic events like raw sewage going into the river or an oil pipeline leak.
White-Caucasian is not an ethnicity or race, my heritage is primarily Northern European. I have worked for the USEPA for over 30 years and work for the environment in every way that I can. I have used Solar Power almost exclusively for over 40 years and do not believe that septic waste systems are best practice when other better systems are available. I do not currently use the water shed resources in this questionare, however;_ I consider them an important part of our environment and do everything I can to help keep them as they should be for the natural environment. <a href="https://www.crowdpac.com-campaigns-203398-dwight-smith">https - -- www.crowdpac.com-campaigns-203398-dwight-smith</a>
While its nice to remind people to take care of their septic systems, by far the biggest threat we have in this area is the Gelman dioxane plume. Whats the impact of that on the Honey Creek watershed?
This survey asked my opinion about many things that need to be tested on a regular basis and not left to public opinion.I would hope that government agencies {local and federal} would STOP the current trend towards apathy for environmental PROTECTION.
Independence Lake is over-run with geese. Ive suggested a cull like Ann Arbor with deer. Feed the poor and make the lake swimmable all of the time.
Look at quality of water in our township notices. It is my understanding that the water quality is good but only from newsletter. We do not have a septic system so many if questions do not pertain to us. However do not feel educated in water quality and ways to help with it. Really would not know where to get reliable and informative information.
I think we should be hooked up to city water BEFORE the Dioxane reaches our road, Rose Dr. I dont think we should wait until its detectable when its almost to our back yards. Lets be proactive and prevent exposure. You would if it was your back yard and water system.

I "parked" my boat on Base Line Lake this summer, and by fall it was covered with Zebra mussels and dark brown stains. Needed two acid washes. This does not happen in northern Minnesota where I used to keep this boat. I do not know the origin of the mussels, but I suspect heavy use of lawn chemicals and inadequate septic systems. I saw several bass in the lake, but locals stated that fishing was poor this summer. I am in favor of government inspections of septic systems. If it were up to me, lawns on the lake would be prohibited as well.

We are very concerned about the vitality, cleanliness and health of area waterways. Thank you for caring about Honey Creek and for soliciting the response and input of area residents. We want to be part of the movement to keep our waterways clean and our community safe.

Thankful that water quality is better than at my last residence {Ohio-Maumee River}. Hope to promote ongoing clean water initiatives in Michigan to preserve Lake Superior, MI, Huron, and help Lake Erie-Ontario which are struggling

Previous owner installed septic system, not sure when it was installed

Would try proper waste disposal if owned a pet; \_ shared input with spouse; \_ rarely uses garbage disposal for small bits

sorry this is late. I had surgery

We pump at 5 year intervals - tank has a new effluent filter; \_ inspection done by a local government agency but the maintenance by owner

Unfortunately, this survey is geared toward larger and more rural areas. Our subdivision has sewers and requirements about disposal of waste, ect. When I have questions , I has the township and then the county.

-What does {ethnicity} have to do with water quality? -Too much government

I'm worried about the lakes at Saginaw Forest, Honey Creek

-I am the Head Lands of Honey Creek. The DEQ has taken 2.5 acres of my property with no reimbursement or compensation for their own purpose. I would be glad to donate my property for compensation of such. -Do not believe the DEQ should be able to take property without compensation. Property was brought before DEQ to take before headlands of honey creek. I should be compensated if they take my property! -{Where are you likely to seek information about water quality issues?} ScioTwshp

-Raise process water costs and use those {to improve water quality}

This questionnaire brought to light how little I know about important issues.

I live in this area for the beauty and recreational opportunities of the Huron river. I want every effort to keep the river healthy for wildlife and for people to enjoy.

-Water Impairment - "How would the typical homeowner know this? This is useless data and questioning for general people." -Sources of Water Pollution - "Problem with what, why? Wildlife contaminating H<sub>2</sub>O? -Consequences of Poor Water Quality - "In the creek or Mercury in the fish?" - Practices to Improve Water Quality - "White is using it occasionally? {not currently}? Where is additives to aquifers? Chlorine to shore wells near creek? Bad scale! -Making Decision for my property - "If I do not know what changes are done, I can not answer." -How would you check if your septic system was Not working properly? - Alarm -Health Department has own nonweco inspector annually and we pay.

-Trust USEPA - "Not under the current administration or Scott Pruitt's direction of the USEPA -Does your septic system have an absorption field {finger system} - "definitely have a drainfield and secondary field; \_ not sure if there are finger drains.

While the local farming community at large tries hard to be good stewards of land, soil and manure, the Huron River Water Council has not really paid attention to education of providing a means of educational information to the large land owners. Mostly aimed at residential home owners.
for septic problems over past 5 years question - Broken sild pipes
Awareness of our water quality in our watershed is important to decision making. Areas of concerns should be publicized, though I hope that no situation becomes as severe as 1-4 dioxane.
-{Responser has two septic systems that they switch back and forth from. Systems are from 1989 and 2011 respectively} -Do you have a garbage disposal - Yes, but we very much limit what goes in "Keep solids out of the septic" is one of our practices."
-Since we seem to be talking surface water. In fact the aquifer below is quite important for all of us using wells. {Joint decision with spouse} -{local govt should handle} installation-repairs
-I am very concerned at Diozane Plume- our water quality is very impacted. -I hope you send me more info about our water and what residents can do to help. -And while answering this questionnaire I realized how much I do not know-see f I can find septic tank cleaner
-Tanks emptied 5-6 years. -Jack Shack sends reminders -Save solids, drain out liquids
-A few years ago, the watershed behind the property was engineered so it would drain better-this was a major controversy because the DEQ-Rep. Quinet-local farmers at the time advocated for the ditch which runs from Scio Church to the woods in the back be cleared. -{Do you regulary read a local newspaper} - Where? Do not need it except to see Gelman cleanup -{Problems with septic system} - when heavy rains-toilets do not flush as well
In the question about Water Impairments, I was thinking of the dioxane contamination of the groundwater. Most of the questions seem to deal with surface water. Im now uncertain whether I interpreted all the questions correctly.
As a household, we are very concerned- and try to be very diligent concerning water usage, quality, and responsibility issues, despite limited funds for applying to these personal issues. We are longtime environmentalists and futhermore, my wife monitors {and reports on} global water issues through her employment {with sciences, LLC-Ann Arbor};_ our son is a sustainability engineer in the clenched, off area. With that said, we feel that our community-in general- is too cavalier about water use and quality. As we draw water from a well {as I do our neighbors}, we feel a responsibility to restrict use and maintain quality. While some neighbors share in this concern, we know others do not. We value the local water resources-rivers, streams, and lakes-and feel that PROTECTION of there, along with drinking water, is of the first PRIORITY. Michigan residents, in general, do not appreciate the value- and the susceptibility of our water resources. Any diversions would be unacceptable as well. - Consequences of poor Water Quality - "I can see {excessive aquatic plants or algae} in the local Huron River stretch. -Do you regularly red a local newspaper - "DOT Free Press-Ann Arbor Observer. Ann Arbor News is a joke these days.
We hope to have a city water system some day.
Our township takes forever and meeting after meeting and some things never get settles. Too much red tape and excuses. They act like they could care less about our lake in their township. - Consequences of Poor Water Quality - "Infusion of lily pads. it is insane to keep letting them choke out our water." -Proper Pet Waste Disposal - "Our local dairy farms have hundreds of cows pee and poop runoff into lake by drain. This caused blue green algae in our lake. -"We are not all farmers."

Scio Township home owners have wells and septic-thats it-most of these questions were a waste of time.
Focus on Gelman Plume-Needs more attention
-This is a pretty useless survey. -Not sure what you mean by management practices. -No local papers worth it anymore.
Pall-Gelman Plume is the main concern of Scio Township. Phosphorus will adhere to the soil if used properly. The majority of phosphorus in or waterways is continuing from Farm-soil runoff.
We are strictly residential. I do not feel that some of the issues apply.
-have {septic system} tested
I found this difficult to fill out because I did not understand much about it and also felt portions did not directly apply to my experience. It did inform me that a newsletter factsheet would be helpful because I would not look up all of this info on my own.
We are very concerned about the Dioxane issue as we have a well and are very near the affected area.
Info on septic tanks maintenance should be offered by title companies at closing or by others involved in selling houses!
I have a 5 year old nad a 2 year old. Essentially, I go to work, come home, feed them dinner, then sleep. This happens 5 days a week. saturday some yard work happens weather permitting. Sunday is church and prepping for the next week. There is not much time for anything else, and I truly appreciate the HRWC for doing this essential vital work.
We have carbon whole house filter on our water due to organics, nitrates...in water from farms nearby. Also high manganese - dissolved rust-iron so bad a softnex. Concerned about building in the area tapping aquifer too much. Many large neighborhoods in short span of time and all on private wells and septic? underground collapse of depleted aquifer. Also Rover recently spilling gasoline into watershed North of here around Gal pipeline going in.
Thank you

#### 2016-0032 Huron River Watershed Council Reducing Bacteria in Honey Creek

This NPS Pollution Control project has been funded wholly or in part through the Michigan Department of Environment, Great Lakes, and Energy's Nonpoint Source Program by the United States Environmental Protection Agency under assistance agreement [number] to [organization name] for the [project name] project. The contents of the document do not necessarily reflect the views and policies of the United States Environmental Protection Agency or the Department of Environment, Great Lakes, and Energy, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.