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Madison Area Municipal Storm Water Partnership: 2013 Stormwater Related Perceptions, Knowledge and Practices Survey Report and 2014 Online Survey Summary

Shelly Hadley
David Trechter

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Staff and students working for the Survey Research Center at UW-River Falls were instrumental in the completion of this study. We would like to thank Denise Parks, Jim Janke, Erin Ingli, Caleb Riedeman, Rosie Krum, Christine Leiby, Kaylin Spaeth, Katrina Barrett, and Bryce Krull. We gratefully acknowledge their hard work and dedication. We would also like to thank Marcia Hartwig, Storm Water Education Coordinator for myfairlakes.com and Outreach Coordinator for Dane County Office of Lakes and Watersheds for her assistance. Finally, we thank the Madison area residents who took the time to complete the survey.

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Phase 1: Madison Area Municipal Storm Water Partnership: 2013 Stormwater Related Perceptions, Knowledge and Practices Survey

Executive Summary

Phase 1: In October and November 2013, the Madison Area Municipal Storm Water Partnership (MAMSWaP) conducted a citizen survey to gather public input and knowledge of storm water issues in the Joint Storm Water Permit Group area consisting of 20 municipalities within Dane County.

The sample of 955 was drawn proportionally to the relative number of households in each participating municipality. Out of 955 surveys sent, 188 households returned their surveys by mail or submitted them online; 2 of those were largely incomplete. A total of 186 usable responses were received. The response rate was 19% (186/955). Given that MAMSWaP municipalities included in the study have approximately 174,574 occupied households, the estimates included in this report should be accurate to within plus or minus 7.2% with 95% confidence.

Phase 2: A follow-up, online survey was conducted in January 2014. The URL to the survey was sent to MAMSWaP committee members by Marcia Hartwig with the encouragement to send to MAMSWaP area residents via email, website posting, newsletter inclusion, etc. A total of 260 usable surveys were submitted in January 2014. The SRC cannot determine how representative the survey respondents were of households in the Joint Storm Water Permit Group area. The survey's response rate and confidence level cannot be determined due to the survey's deployment methods. A summary of Phase 2 is located at the end of the report (pp. 47-78).

Perceptions of Local Water Resources

Generally, people felt that the water quality of lakes, rivers and streams in their community is about the same as the water quality of lakes, rivers and streams in the larger permit map area shown on the survey's cover. Thirty-eight percent of respondents rated water quality of lakes in their community as "good" or "very good" while 42% of respondents rated lake water quality in the map area as "good" or "very good". Forty-eight percent of respondents rated river and stream water quality in their community as "good" or "very good" while 53% of respondents rated river and stream water quality in the map area as "good" or "very good".

Approximately 7 in 10 respondents stated that when stormwater from rain or snow melt leaves their property it goes to a storm drain. Forty-eight percent of respondents stated that once it leaves their neighborhood, stormwater runoff goes to a creek, stream, river or lake.

Respondents most identified agricultural fertilizers and pesticides as major contributors to water quality problems (64%), followed closely by lawn/urban fertilizers and pesticides (58%).

According to respondents, stormwater runoff is a major contributor to weed and algae growth in lakes (59%), and the delivery of sediment to local lakes and stream (52%).

Practices and Efforts

Practices that respondents "already do" most frequently to reduce water pollution are having their car oil changed at an automotive service center (88%), washing their car at a car wash (78%), and directing downspouts to their lawn rather than their driveway (76%).

The practice that respondents are most "willing to do" to reduce water pollution is install a rain barrel or cistern to collect rainwater from downspouts (35%), while the practice that respondents are least willing to do, or "unwilling to do," is stop using chemical fertilizers and weed-killers completely (28%), and stop using salt to melt ice at their residence (22%).

Respondents to some extent are generally aware of efforts by local governments to improve water quality, with 41% being somewhat familiar with efforts, and 39% thinking that activities are taking place, but not knowing very much about them.

The water quality improvement efforts at the local level that respondents believe are the most effective ("very effective" + "effective") are the restoration of wetlands (79%), leaf and yard-waste collection (77%), and enforcing local erosion and stormwater ordinances (73%).

Scenic appreciation is by far the most popular use of local water resources.

Information Sources

Approximately one-half of survey respondents would contact their municipal government if they became aware of a stormwater pollution problem. A substantial percentage of respondents did not know who they should contact.

If respondents receive information about water pollution issues and practices, it generally comes from local newspapers, TV, radio, or community newsletters. Respondents are not actively searching for information about local stormwater issues and practices at the three stormwater websites listed on the survey (*myfairlakes.com, cleanwaterbrightfuture.org, or RenewTheRock.com*).

Survey Sample

Seventy-seven percent of respondents live in single-family homes. Sixty-five percent of respondents had household incomes of $50,000 and above. Respondents were generally male, older, and had achieved a higher level of education than the overall Dane County average.

Survey Purpose and Methods

The goals of the survey were to provide the Madison Area Municipal Storm Water Partnership (MAMSWaP) with information to help local efforts to improve area lakes and streams. Input was sought from households in the Joint Storm Water Permit Group area consisting of 20 municipalities within Dane County that jointly apply for and implement a municipal stormwater discharge permit from the Wisconsin Department of Natural Resources. Involved municipalities are the cities of Fitchburg, Madison, Monona, Middleton, Sun Prairie, Stoughton, and Verona; the villages of Cottage Grove, DeForest, Maple Bluff, McFarland, Shorewood Hills, and Waunakee; and the towns of Burke, Blooming Grove, Dunkirk, Madison, Middleton, Westport, and Windsor.

The 2013 survey instrument was an adaptation of one first created by University of Wisconsin Cooperative Extension – Environmental Resources Center in 2003 for a study commissioned by MAMSWaP. The primary author was Tom Syring, with assistance from Joel Carey and Molly Lepeska.[1] MAMSWaP also commissioned a follow-up study in 2009.[2] The Survey Research Center (SRC) at the University of Wisconsin-River Falls, MAMSWaP and the Rock River Storm Water Group (RRSG) were involved in the design, revision, and review of the 2013 survey questionnaire.

Phase 1: The sample of 955 was drawn proportionally to the relative number of households in each participating municipality. Households were selected from mailing lists acquired from a list broker. Three contacts were involved in the survey process. The initial invitation and survey was mailed to the sample including a pre-addressed postage-paid envelope. The invitation offered the option to complete the survey online and provided the survey's URL. Those not responding to the first mailing were issued a postcard reminder. Households not responding within 10 days of the follow-up postcard were sent another survey.

Out of 955 surveys sent, 188 households returned their surveys by mail or submitted them online; 2 of those were largely incomplete. A total of 186 usable responses were received. The response rate was 19% (186/955). Given that MAMSWaP municipalities included in the study have approximately 174,574 occupied households, the estimates included in this report should be accurate to within plus or minus 7.2% with 95% confidence.

[1] Dane County Community Storm Water Awareness Assessment. November 2003.

[2] Sampling for the 2003 and 2009 surveys resembled drawing stratified, random samples of households for each city, village and township belonging to MAMSWaP. Samples for both years (2003, 2009) were not directly proportional to the relative population of each municipality as was the case for the 2013 sample. The 2009 sample consisted of 750 households with 438 completed surveys compared to the 562 households with 328 completions making up the 2003 sample.

The following analysis will:

- Summarize the responses to the 2013 *Your Views on the Health of Our Lakes, Rivers and Streams* Survey.
- Compare the responses of different demographic groups within the sample to see if they hold different opinions about a given topic.
- Provide comparisons between the results of online responses vs. completions by mail.
- Provide comparisons between MAMSWaP's response patterns and those of a similar study commissioned by the Rock River Storm Water Group (RRSG) and conducted during the same time data was being collected for MAMSWaP (**Appendix A**).
- Determine if responses varied significantly between 2003 (when a similar stormwater survey was conducted) and 2013. A similar study was also conducted in 2009. However, a means test for significance could not be run due to a lack of original data from the 2009 survey. So, statistical tests for historical comparison could only be conducted with 2003 and 2013 data. Substantial modifications were made to the 2013 survey. Questions had to be worded the same in the instruments to be considered comparable and appropriate for statistical testing. Response patterns that vary at statistically significant levels ($p < .05$) will be noted in **Appendix B**.
- Provide tabular comparisons for 2003, 2009, and 2013 results when questions and directions are identical. Survey comparison tables throughout the report contain the differences between responses from the 2003, 2009, and 2013 surveys for the nine questions that were identical for all three survey instruments.

Any survey has to be concerned about non-response bias – the situation where those who don't respond to a survey have systematically different opinions than those who responded. Based on a standard statistical approach, the SRC does not believe that non-response bias is a problem with this dataset. **Appendix C** describes the approach to testing for non-response bias and the results.

Respondents also provided written comments, which are included in **Appendix D**.

Data summaries for each quantitative survey question are in **Appendix E**.

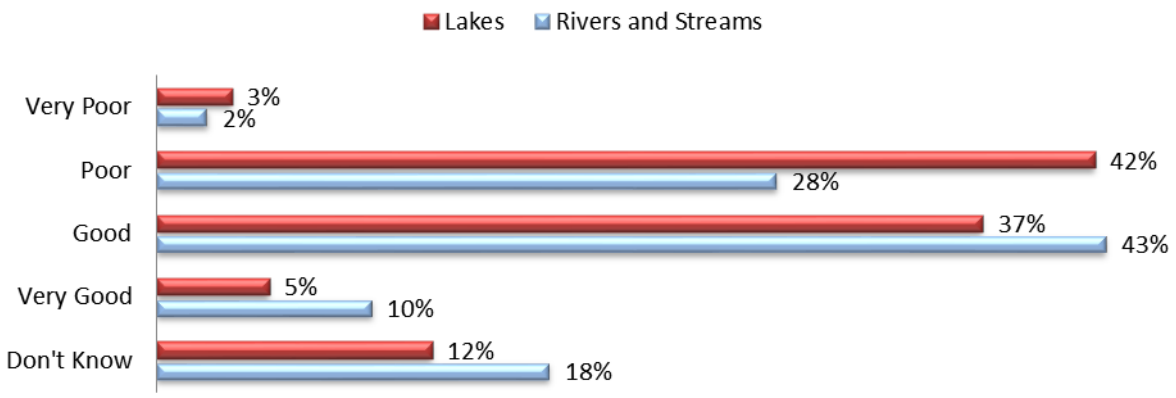
Phase 2: A follow-up, online survey was conducted in January 2014. The URL to the survey was sent to MAMSWaP committee members by Marcia Hartwig with the encouragement to send to MAMSWaP area residents via email, website posting, newsletter inclusion, etc. A total of 260 usable surveys were submitted in January 2014. The SRC cannot determine how representative the survey respondents were of households in the Joint Storm Water Permit Group area. The survey's response rate and confidence level cannot be determined due to the survey's deployment methods. The survey instruments used for both phases were identical. At the end of this report, (pp. 47-78), Phase 2's results are highlighted in the following appendices:

- Data summaries for each quantitative survey question (**Appendix F**).
- Comparisons between MAMSWaP's 2014 online response patterns and those from late 2013 that included both mail and online responses (**Appendix G**).
- Compilation of respondents' open-ended comments (**Appendix H**).

Perceptions of Local Water Resources

Overall Water Quality of Lakes, Rivers, and Streams in Map Area. Respondents were asked to rate the overall water quality of the lakes, rivers, and streams located in the map area printed on the front cover of the survey instrument (**see Appendix E for map**). In Figure 1, overall water quality for lakes in the map area is shown in the top bar in each pair and the water quality of rivers and streams in the bottom bar.

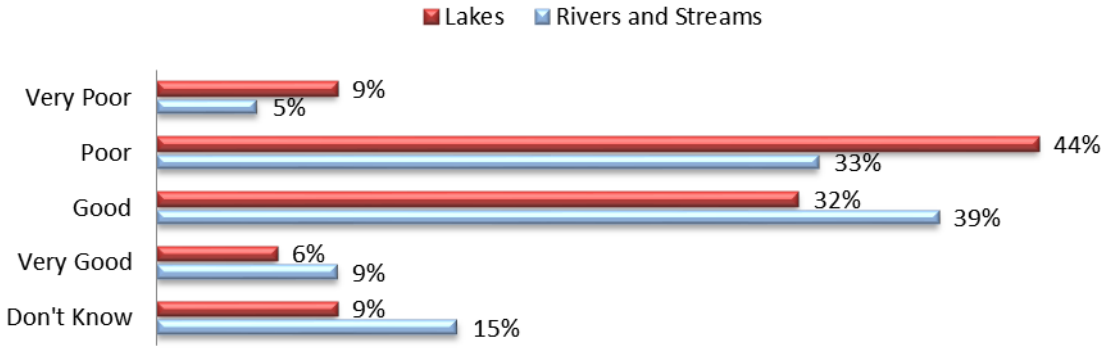
Figure 1: Overall Water Quality Rating of Lakes, Rivers, and Streams
Map Area



As shown in Figure 1, there is a fairly even split between those who rate water quality of the lakes in the map area as very poor or poor (45%) and those rating them very good or good (42%). A slight majority of respondents rated the water quality of the river and streams in the map area as very good or good (53%) compared to 30% of the combined very poor plus poor ratings.

Overall Water Quality of Lakes, Rivers, and Streams in and around Community/Town. Respondents were then asked to rate the overall water quality of the lakes, rivers, and streams located in and around the community/town in which they live. As shown in Figure 2, a slight majority of respondents rated lakes in their community as very poor or poor (53%) compared to the combined very good or good ratings of 38%. The water quality of river and streams in their community was rated higher than lakes with 48% rating them very good or good vs. 38% rating rivers and streams as very poor or poor.

Figure 2: Overall Water Quality Rating of Lakes, Rivers, and Streams
Community/Town



There are no statistically significant demographic differences in terms of the ratings given to water quality in lakes, rivers, and streams in the survey map area and only one significant difference in the rating for water quality in lakes, rivers, and streams in and around the community/town in which a respondent lives: The proportion of respondents with more formal education rate river and streams in their community higher than those with less formal education.

Extent of Contribution to Water Quality Problems in Community. Respondents were asked to rate the degree to which potential sources contributed to water quality problems in lakes, rivers, and streams in their community or town (Table 1). Four sources were perceived as being "major contributors" to water quality problems by a majority of survey respondents: agricultural fertilizers and pesticides, lawn/urban fertilizers and pesticides, manure from farm animals, and stormwater runoff from streets and highways. Nearly one-fifth of survey respondents believe that pet waste does not contribute to water quality problems in their community's lakes, rivers, and streams.

Table 1: Contributes to Water Quality Problems in Lakes, Rivers, and Streams in Community/Town

	Major Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
Agricultural fertilizers and pesticides	64%	19%	3%	14%
Lawn/urban fertilizers and pesticides	58%	32%	2%	8%
Manure from farm animals	55%	29%	4%	12%
Stormwater runoff from streets & highways	54%	32%	5%	10%
Street salt and sand	46%	42%	4%	8%
Stormwater runoff/non-res. rooftops/parking lots	37%	41%	8%	14%
Discharges from industry	35%	40%	5%	20%
Soil erosion from farm fields	35%	39%	8%	18%
Grass clippings and leaves	30%	47%	14%	10%
Discharges from sewage treatment plants	26%	37%	9%	28%
Stormwater runoff/residential rooftops/driveways	24%	55%	11%	10%
Soil erosion from construction sites	22%	57%	5%	16%
Air pollution from industrial activities	20%	48%	12%	21%
Improper disposal of hazardous household wastes	20%	51%	7%	22%
Improper disposal of used motor oil & antifreeze	7%	51%	10%	32%
Pet waste	4%	51%	19%	27%

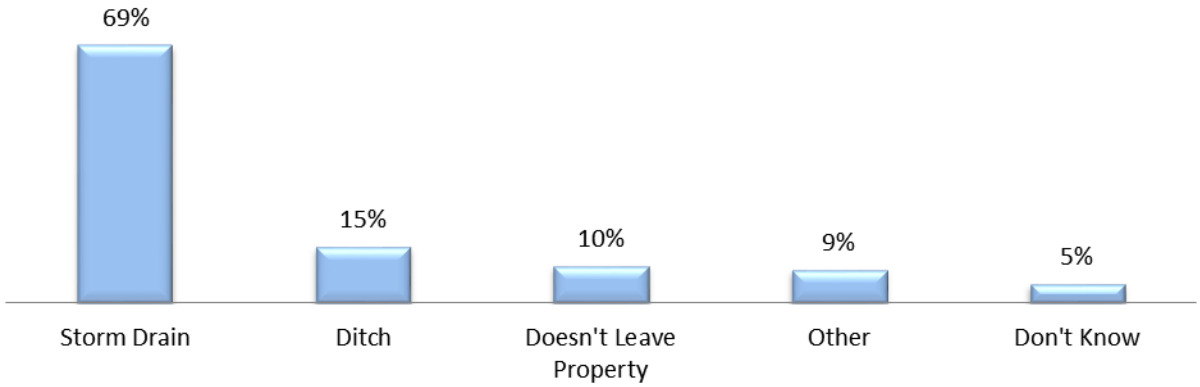
Statistically significant differences among demographic groups:

- Respondents with more formal education are more likely to say that manure from farm animals is a major contributor to water quality problems in area waters, while respondents with less formal education are more likely to say that grass clippings and leaves are major contributors to water quality problems.

- Respondents with higher household incomes are more likely to say that agricultural fertilizers and pesticides and soil erosion from farm fields are major contributors to water quality problems.
- Females are more likely to say that soil erosion from construction sites is a major contributor to water quality problems than males.
- Females are also more likely to say they "don't know" or are "not sure" if the improper disposal of used motor oil and antifreeze, stormwater runoff from residential roofs and driveways, or stormwater runoff from non-residential rooftops and parking lots contribute to water quality problems in lakes, rivers, and streams in and around their community.

Stormwater Runoff after Leaving Property. Respondents were asked to identify the places where stormwater goes after leaving their property. Respondents were allowed to select multiple destinations. Nearly 7 in 10 respondents said that stormwater runoff goes to a storm drain once it leaves their property (Figure 3). There are no differences in the way different demographic groups responded to the question asking where stormwater runoff goes once it leaves their property.

Figure 3: Resulting Stormwater from Rain or Snow Melt on Property goes to:



2003/2009/2013 Comparisons[3]. Over the past ten years, there were slight decreases in the percentage of respondents saying that stormwater goes into a storm drain or into a ditch once it leaves their property. Slight increases have been shown for the responses of "doesn't leave my property" to "I don't know" (Table 2).

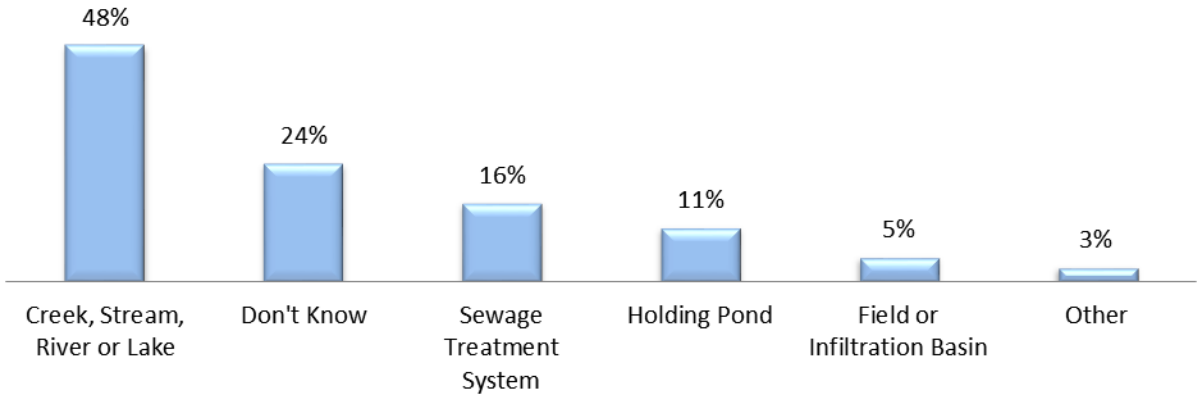
Table 2: Where Stormwater Goes When It Leaves Property*: Comparison of 2013-2009-2003 Results*

	2013	2009	2003
Into a storm drain	69%	74%	76%
Into a ditch	15%	20%	20%
Doesn't leave my property	10%	7%	7%
I don't know	5%	1%	2%

[3] Substantial modifications were made to the 2013 survey. Tabular comparisons tables for 2003, 2009, and 2013 results are shown only when questions were identical throughout the three survey instruments. See Appendix B for statistical testing for 2003 and 2013 data.

Stormwater Runoff after Leaving Neighborhood. Respondents were asked to identify the places where stormwater goes after leaving their neighborhood. Approximately one-half of survey respondents said that runoff goes to a creek, stream, river or lake. A substantial percentage of respondents did not know where stormwater runoff goes once it leaves their neighborhood (Figure 4). Females are more likely to say that they don't know where stormwater goes once it leaves their neighborhood.

Figure 4: Resulting Stormwater from Rain or Snow Melt Once it Leaves Neighorhood goes to:



2003/2009/2013 Comparisons. Over the past ten years, results show decreases in those that say stormwater runoff goes to a creek, stream, river or lake or to a field or infiltration basin when it leaves their neighborhood (Table 3).

Table 3: Where Stormwater Goes When It Leaves Neighborhood*:*
Comparison of 2013-2009-2003 Results

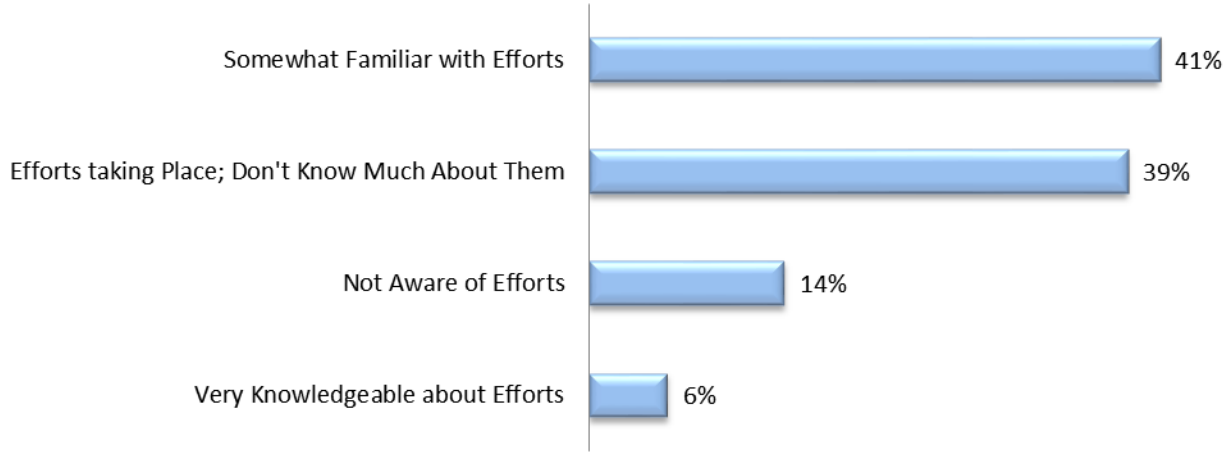
	2013	2009	2003
To a creek, stream, river or lake without treatment	48%	57%	56%
I don't know	24%	20%	20%
To a sewage treatment system	16%	15%	14%
To a holding pond	11%	13%	8%
To a field or infiltration basin	5%	11%	11%

Extent to which Stormwater Runoff Contributes to Problems in the Community. Respondents were asked how after it rain or snows, the resulting stormwater runoff contributes to eleven water related problems in the respondent's community. Table 4 indicates that stormwater runoff was considered a "major contributor" to only two problems listed on the survey by a majority of respondents: weed and algae growth in lakes and the delivery of sediment to local lakes and streams. Approximately one-third of respondents said that stormwater runoff does not contribute to increased numbers of zebra mussels or the quality of local drinking water. One-third or more of respondents don't know or are not sure if stormwater runoff contributes to less recharge of local aquifers, increased numbers of zebra mussels, a reduction in normal flow of local streams, or increased temperatures in lakes/streams. Females are more likely to say that they don't know or are not sure if stormwater runoff contributes to negative impacts on wildlife or fish habitat.

Table 4: Extent to Which Stormwater Runoff Contributes to Problems in Community/Town				
	Major Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
Weed & algae growth in lakes	59%	20%	8%	13%
Delivery of sediment to local lakes/streams	52%	31%	3%	15%
Negative impacts on local swimming/beach areas	47%	31%	9%	13%
Flooding	34%	40%	14%	11%
Negative impacts on fish habitat	34%	35%	10%	21%
Increased temperatures in lakes/streams	24%	22%	16%	38%
Negative impacts on habitat for wildlife	23%	40%	14%	23%
Reduction in normal or "base" flow of local streams (e.g. flow when it's not raining)	17%	20%	19%	43%
Less recharge of local aquifers	14%	19%	13%	54%
The quality of local drinking water	12%	32%	31%	25%
Increased numbers of zebra mussels	5%	10%	35%	51%

Awareness of Efforts to Improve Water Quality. Respondents were asked to rate their awareness of current efforts by local governments to improve water quality (Figure 5). Similar percentages of respondents said that they were somewhat familiar with efforts to improve water quality in their community (41%) and thought that activities were taking place, but didn't know much about them (39%). There were no demographic differences in the awareness level of current efforts by local governments to improve the water quality of lakes, streams and/or rivers in a respondent's community/town.

Figure 5: Awareness of Water Quality Efforts by Local Government



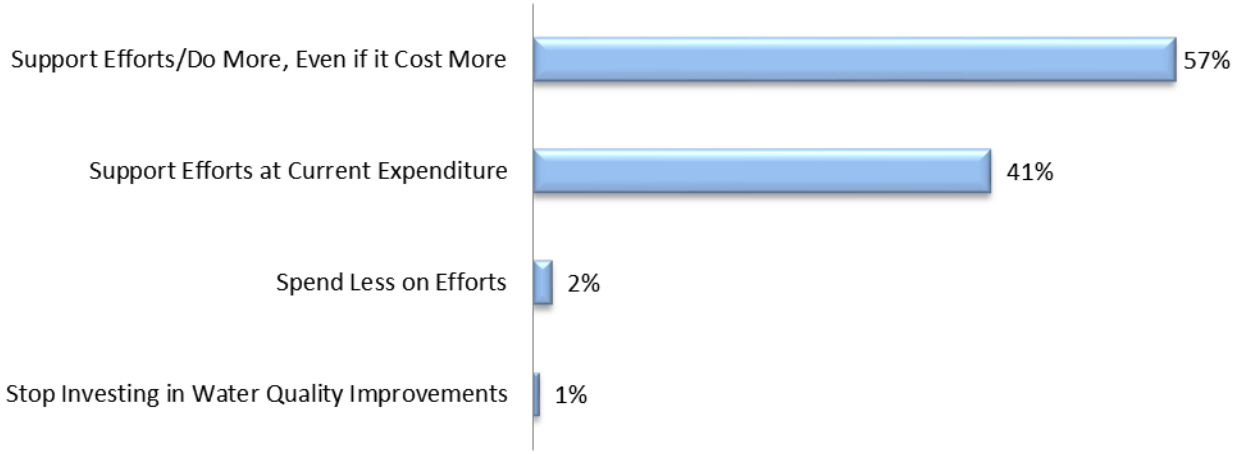
2003/2009/2013 Comparisons. Results show a large increase since 2003 of respondents saying they are somewhat familiar with efforts to improve water quality in their community. A comparable decrease is shown of those who think activities are taking place, but don't know much about them. Lack of awareness of current water quality improvement efforts have remained the same (Table 5).

Table 5: Awareness of Current Efforts by Local Government to Improve Water Quality*: Comparison of 2013-2009-2003 Survey Results*

	2013	2009	2003
Somewhat familiar with efforts to improve water quality in community	41%	21%	24%
Think activities are taking place, but don't know very much about them	39%	64%	57%
Not aware of any current efforts	14%	14%	14%
Very knowledgeable about efforts to improve water quality in community	6%	2%	3%

Support for Investment in Water Quality. Figure 6 summarizes the results of a question asking respondents their level of support for their community's efforts to improve the water quality of local rivers, streams and lakes. A slight majority of respondents support efforts and would like their community to be doing more, even if it costs more. Very few respondents were in favor of spending less on efforts or stopping investment on water quality improvements altogether. There were no demographic differences in the level of support for water quality efforts.

Figure 6: Support for Water Quality Investment



Practices and Efforts

Current Practices. Table 6 highlights the current behaviors of respondents in their use of practices designed to prevent or reduce water pollution. Three practices are currently being done by a relatively large majority (over 75%) of respondents: having their oil changed at an automotive service center, washing their car at a car wash, and directing downspouts to their lawn rather than their driveway. Approximately one-half of survey respondents report that they use a mulching lawnmower, compost leaves and grass clippings in their yard, keep street gutters in front of their residence clear of grass clippings and leaves, clean up and dispose of pet waste, and take used automotive oil to a recycling center. A substantial percentage of respondents are not willing to stop using chemical fertilizers and weed-killers completely (28%) nor are they willing to stop using salt to melt ice at their residence (22%).

Table 6: Current Practices

	Already do this	Willing to do	Need more info	Unwilling to do	Not Applicable
Have oil changed at an auto service center	88%	3%	1%	2%	6%
Wash car at a car wash	78%	7%	0%	5%	11%
Direct rain downspouts to lawn rather than driveway	76%	8%	3%	2%	11%
Use a mulching lawnmower	63%	12%	3%	3%	18%
Compost leaves and grass clippings in yard	51%	16%	3%	10%	18%
Keep street gutters in front of residence clear of grass clippings and leaves	49%	24%	3%	3%	21%
Clean up and dispose of pet waste	47%	3%	1%	1%	48%
Take used automotive oil to a recycling center	46%	4%	1%	2%	47%
Apply chemical fertilizers only 1-2x/yr.	42%	9%	4%	7%	38%
Apply weed-killers only 1-2x/yr.	39%	11%	5%	7%	38%
Use fertilizer w/no or ltd amts. of phosphorus	33%	22%	10%	5%	31%
Compost leaves and grass clippings through a community program	30%	22%	6%	6%	36%
Stop using salt to melt ice at residence	28%	21%	16%	22%	13%
Stop using chemical fertilizers and weed-killers completely	25%	11%	18%	28%	18%
Install a “rain garden” to intercept rainwater from downspouts	11%	27%	23%	16%	23%
Install a rain barrel or cistern to collect rainwater from downspouts	10%	35%	14%	17%	24%
Wash car on lawn	9%	16%	5%	19%	51%
Conduct soil tests to determine fertilizer application rates for lawn	4%	19%	20%	7%	49%

Older respondents were more likely to say that they keep street gutters in front of their residence clear of grass clippings and leaves, more likely to compost leaves and grass clippings through a community program, and are more likely to wash their car at a car wash. Respondents with higher household income were more likely to say that they direct rain downspouts to their lawn rather than their driveway. Males were more likely to say that they apply weed-killers only once or twice per year, and are more likely to say that they use a mulching lawnmower.

Impediments to Practices. Respondents were given an opportunity, in an open-ended question, to list why they are not doing the practices listed in Table 6 (i.e., what prevents them from doing the practices). The practices garnering the most comments were about discontinuing the use of salt to melt ice and the use of chemical fertilizers and weed-killers.

> *"I use salt to melt ice in winter. I'm not aware of alternatives or if they are really better. "*
> *"If I stop using weed killer, lawn will be overturn by weeds."*

See Appendix D, Question 10 for the complete list of comments about what prevents respondents from doing the practices designed to prevent or reduce water pollution listed on the survey.

2003/2009/2013 Comparisons. 2013 results show a substantial decrease in the percentage of respondents that say they currently take used automotive oil to a recycling center and a substantial increase in the percentage of respondents that say they use a fertilizer with no or limited amounts of phosphorus.

Table 7: Current Practices: "*Already Do This" Responses: Comparison of 2013-2009-2003 Survey Results*

	2013	2009	2003
Have oil changed at an automotive service center	88%	84%	81%
Wash car at a car wash	78%	79%	79%
Direct rain downspouts to lawn rather than driveway	76%	84%	76%
Use a mulching lawnmower	63%	74%	63%
Compost leaves and grass clippings in yard	51%	51%	43%
Keep street gutters in front of residence clear of grass clippings and leaves	49%	64%	50%
Clean up and dispose of pet waste	47%	51%	44%
Take used automotive oil to a recycling center	46%	62%	62%
Apply chemical fertilizers only once or twice per year[1]	42%	48%	38%
Apply weed-killers only once or twice a year[1]	39%	53%	
Use a fertilizer with no or limited amounts of phosphorus[2]	33%	---	8%
Compost leaves and grass clippings through a community program	30%	35%	22%
Stop using salt to melt ice at residence	28%	26%	36%
Stop using chemical fertilizers and weed-killers completely[3]	25%	---	14%
Install a "rain garden" to intercept rainwater from downspouts	11%	9%	6%
Install a rain barrel or cistern to collect rainwater from downspouts	10%	7%	4%
Wash car on lawn	9%	13%	14%
Conduct soil tests to determine fertilizer application rates for lawn	4%	9%	10%

*1. In 2003, the practices of **"apply chemical fertilizers and applying weed-killers only 1-2x/ year"** were combined. In 2009 and 2013, the question was split into two practices, so exact comparisons are not possible.*
*2. In 2009, the practice of **"use a fertilizer with no or limited amounts of phosphorus"** was not included.*
*3. In 2009, the practice of **"stop using chemical fertilizers and weed-killers completely"** was split into two practices.*

Effectiveness of Efforts to Improve Water Quality in the Community. Table 8 shows the results to a question related to perceptions of the effectiveness of different efforts for addressing stormwater problems at the local community level. Eight of the nine efforts described in the survey were considered "very effective" or "effective" by a majority of respondents. Stenciled messages on streets/drains was considered "somewhat effective" or "not effective" by approximately one-half of the survey respondents. Females were more likely than males to say that they don't know if developing infiltration facilities where stormwater can seep into the ground is an effective way to improve the water quality of lakes, streams and/or rivers in their community.

Table 8: Effectiveness of Efforts to Improve Water Quality in the Community

	Very Effective	Effective	Somewhat Effective	Not Effective	Don't Know
Restoring wetlands	53%	26%	6%	3%	11%
Leaf & yard-waste collection	39%	38%	16%	2%	6%
Developing buffers along waterways & shorelands	35%	33%	10%	1%	22%
Enforcing local erosion & stormwater ordinances	34%	39%	11%	3%	13%
Developing infiltration facilities where stormwater can seep into the ground	32%	35%	12%	3%	18%
Reducing salt usage for melting ice	27%	38%	22%	2%	11%
Street sweeping	26%	35%	23%	3%	14%
Installing "rain gardens"	16%	43%	14%	3%	24%
Stenciled messages on streets/drains	9%	20%	30%	18%	23%

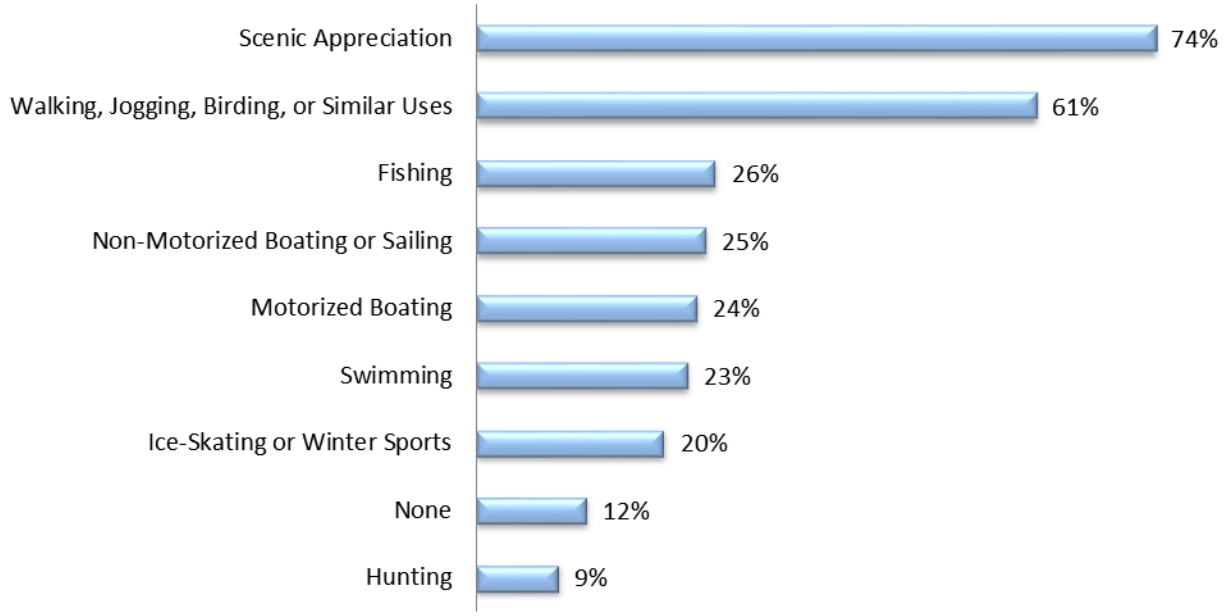
2003/2009/2013 Comparisons. Since 2003, there have been increases in the perception of the effectiveness of all nine efforts described in the survey for addressing stormwater problems at the local community level. There was a large increase in the percentage of respondents saying that installing rain gardens is a "very effective" or "effective" effort to improve water quality (Table 9). Considerable increases are also shown for enforcing local erosion and stormwater ordinances, developing buffers along waterways and shorelands, and restoring wetlands.

Table 9: Effectiveness of Water Quality Improvement Efforts in Community – "*Very Effective*" + "*Effective*" Responses: Comparison of 2013-2009-2003 Survey Results

	2013	2009	2003
Restoring wetlands	79%	77%	68%
Leaf & yard-waste collection	77%	78%	72%
Enforcing local erosion & stormwater ordinances	73%	64%	61%
Developing buffers along waterways & shorelands	68%	64%	55%
Developing infiltration facilities where stormwater can seep into the ground	67%	70%	60%
Reducing salt usage for melting ice	65%	57%	57%
Street sweeping	61%	59%	53%
Installing "rain gardens"	59%	39%	35%
Stenciled messages on streets/drains	29%	22%	23%

Water Resources Usage in the Last Year. Respondents were asked about ways they have used the water resources in and around their community in the last calendar year (Figure 7). A large majority of respondents (74%) reported that they used the water resources for scenic appreciation. Walking, jogging, birding, or similar uses is the next most popular use, at 61%, followed by fishing at 26%, non-motorized boating or sailing at 25%, motorized boating at 24%, and swimming at 23%.

Figure 7: Water Resource Usage in Community:
During Last Calendar Year



Demographic groups utilized local water resources for different reasons. Respondents with higher levels of formal education were more likely to have used local water resources for motorized boating, swimming, and walking, jogging, birding, or similar uses, while respondents with less formal education were more likely to have not used water resources for any of the ways listed on the survey over the past calendar year. Respondents with higher household incomes were more likely to have used water resources in and around their community for motorized boating, fishing, and scenic appreciation. Younger respondents were more likely to have used the waters for swimming and ice-skating or winter sports.

2003/2009/2013 Comparisons. Reported water resource usage has not changed much since the original survey was conducted in 2003 (Table 10). The largest increase occurred from 2003 to 2009 in the reported usage of walking, jogging, birding, or similar uses. Respondents reporting no water resource usage at all within a calendar year has remained steady over the past decade.

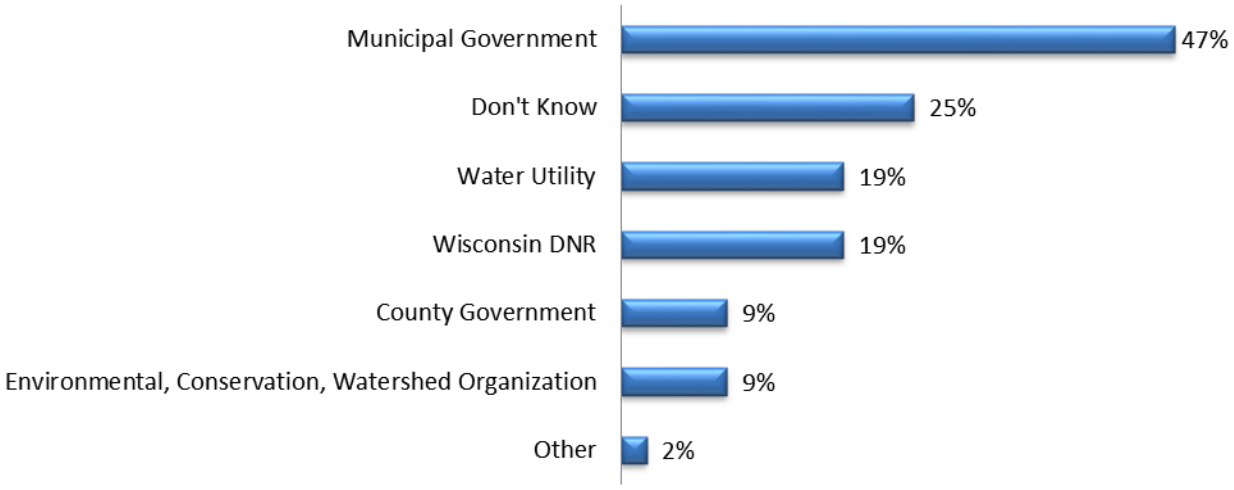
Table 10: Water Resource Usage and Activities in Last Calendar Year: ***Comparison of 2013-2009-2003 Survey Results***

	2013	2009	2003
Scenic appreciation	74%	73%	71%
Walking, jogging, birding, or similar uses	61%	63%	50%
Fishing	26%	33%	25%
Non-motorized boating and sailing	25%	24%	18%
Motorized boating	24%	30%	21%
Swimming	23%	30%	24%
Ice-skating or winter sports	20%	21%	17%
None	12%	9%	12%
Hunting	9%	12%	3%

Information Sources

Who to Contact about Stormwater Pollution Problem. Respondents were asked who they would contact if they became aware of a stormwater pollution problem. As shown In Figure 8, municipal government was the most frequent choice among respondents. Younger members were more likely to say they do not know who to contact, while older respondents were more likely to say they would contact their municipal government.

Figure 8: Contact if Stormwater Pollution Problem

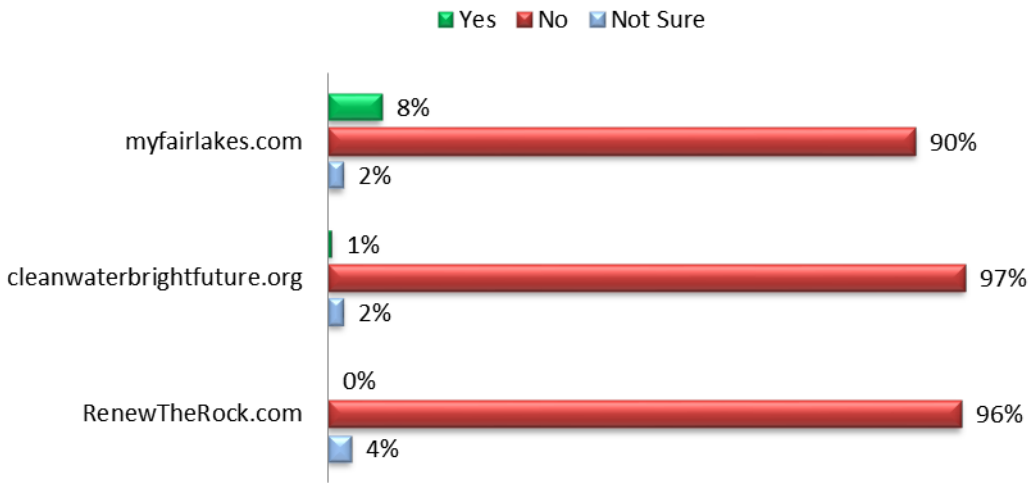


Information Sources. Respondents were asked if they recall receiving information regarding stormwater pollution issues and practices from various sources. Approximately one-fourth to one-third of respondents recalls receiving information from a local newspaper, TV, radio, or community newsletter. Older respondents were more likely to recall receiving information from a community newsletter or local newspaper than younger respondents.

Figure 9: Information Sources in the Last Five Years Regarding Stormwater Pollution Issues

Websites. Respondents were asked if they ever visited three websites listed on the survey. In Figure 10, three options are shown: yes=top bar, no=middle bar and not sure=bottom bar. Most respondents to the survey have not visited the websites. There were no demographic differences regarding website visitation.

Figure 10: Visited Websites



Online vs. Mail Response Differences

The vast majority of respondents (87%) completed the survey by mail; 13 percent were completed online – the survey invitation offered the option to complete the survey online and provided a URL. There were 4 statistically significant differences in responses of online respondents and mail response out of 101 variables tested (4%). (Table 11).

Statistical analysis indicates that *online respondents* were more likely:

- to say that the improper disposal of used motor oil and antifreeze does not contribute to water quality problems in lakes, rivers, and streams in and around the community/town in which they live. Respondents from mailed surveys were more likely to say that improper disposal is a minor contributor to water quality problems.
- than mail respondents to say that resulting stormwater after rain and snow melt does not leave their property.
- to say that they do not know who to contact if they became aware of a stormwater pollution problem.
- to have used a non-motorized boat in water resources in and around their community in the past year than mail respondents.

The fact that there are so few statistically significant differences indicates that stormwater-related perceptions, knowledge, and practices are generally similar between these two groups.

Table 11 – Statistically Significant Differences Between Online and Mail Responses

Variable	Mean *Online*	Mean *Mail*	Statistical Significance
Q3b Contributes to Water Quality Problems: improper disposal of used motor oil and antifreeze	2.68	2.24	.048
Q4 Stormwater leaving property: doesn't leave property	.23	.08	.018
Q12 Contact: don't know who to contact	.42	.22	.028
Q24 Water resource activity: non-motorized boating	.42	.22	.028

Additional Comments

Respondents were given an opportunity, in an open-ended question, to add anything else they wanted to say about stormwater runoff/water quality issues. The SRC grouped the answers into broad topical categories, resulting in a total of 32 comments. The results are summarized in Table 12. As appropriate, selected quotes are used to illustrate these comments.

The most frequent comments were about the **overall issue of water quality** and comments regarding **current practices and efforts:**

"*This is important to give serious attention to....but it's difficult to understand how bad the problem is, the urgency to do anything, and whether the proposals that are being advocated are the best way to proceed..."*

"What alternatives are there to using salt for a steep, slippery driveway when it is icy?"

Table 12: Additional Comments

Topic	Count	%
Issue of Water Quality	5	16%
Practices and Efforts	5	16%
Lakes/Rivers	4	13%
Agriculture	3	9%
Development	3	9%
DNR	2	6%
Flooding	1	3%
Information/Education	1	3%
Pollution	1	3%
Miscellaneous	7	22%
Total	**32**	**100%**

Lakes/Rivers comment:

"I'm basing my estimate of lake and river health on the clear lakes and rivers up north. Maybe this isn't appropriate. Could lakes and rivers in Southern, WI look like those in North Wisconsin?"

Respondents wrote about **agriculture** and the **DNR**:

"An effective solution needs to be developed to reduce phosphorus loads from Agriculture sources. The algae growth would diminish then."

"Get the State-DNR lead- to support low impact design and/or green infrastructure."

See Appendix D, Question 15 for the complete list of comments.

Profile of Respondents

Response Rate by Municipality. Table 13 shows response rates by municipality. The sample of 955 was drawn proportionally to the relative number of households in each participating municipality.

Table 13: 2013 Survey Response Rate by Municipality

Municipality Type	Wisconsin	Invitations Mailed	In Sample	Response Rate	Percentage of Sample
City	Madison	544	111	20%	60%
	Fitchburg	52	6	11%	3%
	Middleton	43	5	12%	3%
	Sun Prairie	63	12	19%	7%
	Monona	21	4	19%	2%
	Stoughton	29	4	14%	2%
	Verona	23	5	22%	3%
Village	Cottage Grove	11	1	9%	1%
	DeForest	18	3	16%	2%
	Maple Bluff	3	NA	---	---
	McFarland	17	7	42%	4%
	Shorewood Hills	34	6	17%	3%
	Waunakee	24	7	29%	4%
Town	Blooming Grove	4	NA	---	---
	Burke	7	1	14%	1%
	Dunkirk	5	3	64%	2%
	Madison	19	2	10%	1%
	Middleton	11	3	28%	2%
	Westport	11	1	9%	1%
	Windsor	14	3	21%	2%
	Total	**955**	**184**	**19%**	**100%**

Survey identifications numbers were removed from 2 completed mailed surveys
No completed returns for Blooming Grove or Maple Bluff

Survey Respondents. Table 14 summarizes the demographic profile of respondents to the 2013 MAMSWaP survey. Where appropriate, data from the U.S. Census for Dane County are included for comparative purposes.[1] Questions for gender, age, and organizational membership were identical to previous survey instruments used in 2003 and 2009, so comparisons are included in Table 14 for those three variables.

The sample very closely matches the household income in the overall population of Dane County and contains more respondents who have completed advanced degrees. One-fourth of the survey sample is under the age of 45 compared to 54% in the overall Dane County population. More than one-third of survey respondents are retired. The proportion of males in the sample is substantially higher than the percentage of males in the total population. *Response patterns that vary at statistically significant levels between demographic groups ($p < .05$) are noted in the report.*

Table 14: Demographic Profile of 2013 MAMSWaP Survey Respondents

Gender	**Count**	**Male**	**Female**					
2013 Sample	173	65%	35%					
2009 Sample	437	80%	20%					
2003 Sample	328	63%	37%					
2013 Census (18+)	379,214	49%	51%					
Age	**Count**	**18 – 24**	**25 – 34**	**35 – 44**	**45 – 54**	**55 – 64**	**65+**	
2013 Sample	177	2%	12%	11%	18%	21%	37%	
2009 Sample	435	<1%	8%	16%	30%	26%	21%	
2003 Sample	328	<1%	9%	20%	26%	23%	19%	
2013 Census (18+)	379,214	17%	20%	17%	18%	14%	13%	
Employment Status	**Count**	**Self Empl**	**Full time**	**Part time**	**Home-maker**	**Unempl**	**Retired**	**Other**
2013 Sample	178	9%	44%	6%	1%	1%	36%	3%
2013 Census (16+)	390,894	3%	70%[2]		---	4%	8%	
Education	**Count**	**< High School**	**High School**	**Some College/ Tech**	**Tech College Grad**	**Bach Degree**	**Grad/ Prof Degree**	
2013 Sample	175	0%	12%	15%	6%	29%	37%	
2013 Census (25+)	313,182	6%	21%	19%	9%	27%	18%	
Household Income	**Count**	**Under $25K**	**$25K - $34.9K**	**$35K - $49.9K**	**$50K - $74.9K**	**$75K - $99.9K**	**$100K+**	
2013 Sample	163	12%	7%	17%	22%	15%	28%	
2013 Census (Total HH)	199,767	18%	9%	13%	19%	16%	25%	
Type of Residence	**Count**	**Single Family**	**Duplex**	**Condo/ Townhouse**	**Apt**	**Mobile Home**	**Other**	
2013 Sample	179	77%	2%	7%	12%	1%	1%	
Membership: Environ-mental, Conservation, or Watershed Org.	**Count**	**Yes**	**No**					
2013 Sample	174	24%	76%					
2009 Sample	442	18%	82%					
2003 Sample	328	17%	83%					

[1] *Source*: U.S. Census Bureau, 2007-2011 American Community Survey. [2] Census does not differentiate between full-time and part-time employment.

Conclusions

The level of knowledge about stormwater issues is fairly high but there is room for additional educational efforts with respect to negative impacts of stormwater runoff. Most respondents appear to behave in ways that are likely to minimize their environmental impact with respect to washing their cars and disposing of waste motor oil.

Areas in which additional educational efforts may pay dividends are with respect to basing lawn fertilizer application on soil tests, and the installation of rain gardens to intercept rainwater from downspouts. These two areas had relatively few respondents currently doing them and the highest "need more information" responses.

Females were significantly more likely to say they don't know or are not sure of the answer to a series of questions about stormwater issues, so a primary target for stormwater awareness campaigns could be females.

Respondents are generally aware of efforts by local governments to improve water quality. The water quality improvement efforts at the local level that respondents believe are most effective are the restoration of wetlands, leaf and yard-waste collection, and enforcing local erosion and stormwater ordinances.

Local newspapers and to some degree TV, radio, and community newsletters are the sources that this group of respondents have obtained information about stormwater pollution issues and practices. However, one-third or less of respondents have obtained stormwater information from any of the sources listed on the survey. Relatively few respondents have visited websites specifically geared towards this type of information.

There is relative consistency since 2003 in survey results adding additional confidence that results accurately capture the knowledge level and practices of people in the study area relative to stormwater issues. However, there are areas where results have fluctuated. Respondents appear to be slightly more knowledgeable about local efforts to improve water quality than in 2003, respondents are less willing to conduct soil tests to determine fertilizer application rates for their lawn, less willing to stop using salt to melt ice at their residence, and are less willing to wash their car on their lawn. There have been considerable increases in the percentage of respondents who say that installing rain gardens, enforcing local erosion and stormwater ordinances, developing buffers along waterways and shorelands, and restoring wetlands are "very effective" or "effective" efforts to improve water quality.

Appendix A – MAMSWaP vs. RRSG Results

The *Your Views on the Health of Our Lakes, Rivers and Streams* survey was initiated by both the Madison Area Municipal Storm Water Partnership (MAMSWaP) and the Rock River Stormwater Group (RRSG) in October and November 2013. Both groups worked with the Survey Research Center (SRC) at the University of Wisconsin-River Falls to conduct the surveys. Both projects surveyed during the same data collection period, sent the same number of surveys to households in their respective areas (955), used the same survey instrument, followed the same multiple mailing method (3 contacts: first survey, postcard reminder, second survey), and both groups allowed for online submission.

A total of 186/955 (19%) usable surveys were collected for MAMSWaP and 159/955 (17%) for RRSG. A statistical comparison was conducted using responses to survey questions for both groups. The standard p value of .05 was used as the cutoff for statistical significance. There were 37 statistically significant differences in the responses of MAMSWaP and RRSG survey participants of 101 variables tested (37%). (**Table A1**). Data summaries for each quantitative survey question are in **Table A2**.

Table A1 indicates that even when statistical differences exist, the magnitude of most differences are small. For instance, questions about the extent stormwater runoff contributes to community problems (Question 6) consisted of a scale ranging from "major contributor" = 1, "minor contributor" = 2, and "does not contribute" = 3. There was also a "don't know/not sure" option. When asked if stormwater runoff contributes to weed and algae growth in lakes, the MAMSWaP respondents had a mean response = 1.75, while RRSG respondents had a mean = 2.28, indicating that both groups' responses were closest to agreeing that stormwater runoff is a "minor contributor" to weed and algae growth in lakes.

Statistical analysis indicates that MAMSWaP respondents are:

- marginally more likely to say that both stormwater runoff from residential rooftops and driveways and grass clippings and leaves are minor contributors towards water quality problems in lakes, rivers, and streams in and around the community/town in which they live.
- slightly more likely to say that they support water quality efforts in their community even if it costs more.
- more likely to say they need more information before they take used automotive oil to a recycling center, apply weed-killers only once or twice a year, or clean up and dispose of pet waste.
- more likely to contact their municipal government if they become aware of a stormwater pollution problem.
- more likely to be a member of an environmental, conservation, or watershed organization.
- more likely to say they have used the water resources in and around their community in the past year for non-motorized boating or sailing, walking, jogging, birding, or similar uses, and for scenic appreciation.
- more likely to have higher household incomes and higher levels of education.

RRSG respondents are:

- more likely to rate the water quality of lakes in the survey map area (Rock River Watershed) and the community/town in which they live higher than MAMSWaP respondents.
- slightly more likely to say that they support water quality efforts in their community at current expenditure levels.
- more likely to say the following efforts are "somewhat effective" in their community: installing rain gardens, developing infiltration facilities where stormwater can seep into the ground, reducing salt usage for melting ice, and developing buffers along waterways and shorelands.
- more likely to have used the water resources in and around their community in the past year for fishing, hunting, and swimming.

Table A1 – Statistically Significant Differences Between MAMSWaP and RRSG Responses

Variable	Mean *MAMSWaP*	Mean *RRSG*	Statistical Significance
Q1a Overall Water Quality of Lakes: Area on Map	2.80	3.20	.001
Q2a Overall Water Quality of Lakes: Community	2.63	3.04	.000
Q3 Contributes to Water Quality Problems: stormwater runoff/residential rooftops/ driveways	2.07	2.31	.019
Q3 Contributes to Water Quality Problems: grass clippings and leaves	2.03	2.51	.000
Q4 Leaving property, stormwater: storm drain	.68	.53	.005
Q4 Leaving property, stormwater: ditch	.14	.23	.046
Q5 Leaving neighborhood, stormwater: holding pond	.11	.04	.015
Q5 Leaving neighborhood, stormwater: field or basin	.05	.16	.001
Q6c Stormwater runoff: weed and algae growth	1.75	2.28	.000
Q6d Stormwater runoff: impacts on fish habitat	2.18	2.42	.045
Q6g Stormwater runoff : impacts on swimming/beach	1.88	2.45	.000
Q6h Stormwater runoff : delivery of sediment	1.80	2.13	.006
Q7 Awareness of Water Quality Efforts	2.38	2.04	.000
Q8 Support investment in water quality	1.46	1.73	.000
Q9a Current practices: take used oil to recycling ctr.	2.99	2.36	.003
Q9b Current practices: oil changed at service center	1.35	1.68	.016
Q9e Current practices: apply weed-killer only 1-2x/yr.	2.95	2.54	.040
Q9p Current practices: wash car on lawn	3.87	3.37	.004
Q9r Current practices: clean-up/dispose of pet waste	3.00	2.55	.039
Q11b Effectiveness: install rain gardens	2.76	3.39	.000
Q11c Effectiveness: leaf and yard-waste collection	1.97	2.26	.031
Q11d Developing infiltration facilities	2.41	2.99	.001
Q11e Enforcing local erosion/stormwater ordinances	2.23	2.68	.005
Q11f Restoring wetlands	1.92	2.34	.007
Q11h Reduce salt usage for melting ice	2.33	2.75	.003
Q11i Developing buffers along waterways/shorelands	2.42	2.96	.002
Q12 Contact: municipal government	.47	.35	.021

Table A1 (cont.) – Statistically Significant Differences Between MAMSWaP and RRSG Responses			
Variable	**Mean *MAMSWaP***	**Mean *RRSG***	**Statistical Significance**
Q13 Information: newsletter	.28	.13	.001
Q18 Mbr of an Environ, Conserv, or Watershed Org.	1.76	1.90	.001
Q21 Education	4.64	3.66	.000
Q23 Income	4.06	3.44	.001
Q24 Water Resource Activity: non-motorized boating	.25	.16	.034
Q24 Water Resource Activity: fishing	.26	.37	.027
Q24 Water Resource Activity: hunting	.09	.21	.001
Q24 Water Resource Activity: swimming	.22	.33	.030
Q24 Water Resource Activity: walking, jogging, birding	.60	.46	.008
Q24 Water Resource Activity: scenic appreciation	.73	.60	.010

Table A2: Quantitative Summary of Responses by Question – Comparison of MAMSWaP and RRSG Results		
Overall Water Quality of Lakes, Rivers, and Steams Located in the Area on the Map – Rock River Watershed: *"Very Good" + "Good" Responses*		
	MAMSWaP	**RRSG**
Lakes	42%	57%
Rivers and Streams	53%	46%
Overall Water Quality of Lakes, Rivers, and Steams Located in and around the Community/Town in Which you Live: *"Very Good" + "Good" Responses*		
	MAMSWaP	**RRSG**
Lakes	38%	53%
Rivers and Streams	48%	48%
***"Major Contributor"* to Water Quality Problems in Lakes, Rivers, and Streams Located in and around the Community/Town in Which you live**		
	MAMSWaP	**RRSG**
Pet waste	4%	4%
Improper disposal of used motor oil & antifreeze	7%	17%
Air pollution from industrial activities	20%	24%
Lawn/urban fertilizers and pesticides	58%	53%
Manure from farm animals	55%	39%
Discharges from sewage treatment plants	26%	30%
Stormwater runoff from streets & highways	54%	38%
Stormwater runoff from residential rooftops and driveways	24%	18%
Stormwater runoff from non-residential rooftops & parking lots	37%	23%
Grass clippings and leaves	30%	12%
Soil erosion from construction sites	22%	19%
Street salt and sand	46%	44%
Discharges from industry	35%	35%
Agricultural fertilizers and pesticides	64%	57%
Soil erosion from farm fields	35%	36%
Improper disposal of hazardous household wastes	20%	27%

Where Stormwater Goes When It Leaves Property		
	MAMSWaP	**RRSG**
I don't know	5%	5%
Into a storm drain	69%	53%
Into a ditch	15%	23%
Doesn't leave my property	10%	13%
Other	9%	11%
Where Stormwater Goes When It Leaves Neighborhood		
	MAMSWaP	**RRSG**
I don't know	24%	23%
To a creek, stream, river or lake without treatment	48%	50%
To a sewage treatment system	16%	15%
To a holding pond	11%	4%
To a field or infiltration basin	5%	16%
Other	3%	1%
Extent to Which Stormwater Runoff is a *"Major Contributor"* to this Problem in Your Community		
	MAMSWaP	**RRSG**
Flooding	34%	38%
Increased numbers of zebra mussels	5%	1%
Weed & algae growth in lakes	59%	32%
Negative impacts on fish habitat	34%	20%
Negative impacts on habitat for wildlife	23%	17%
The quality of local drinking water	12%	12%
Negative impacts on local swimming and beach areas	47%	21%
Delivery of sediment to local lakes and streams	52%	35%
Increased temperatures in lakes and streams	24%	12%
Reduction in normal or "base" flow of local streams (e.g. flow when it's not raining)	17%	14%
Less recharge of local aquifers	14%	9%
Awareness of Current Efforts by Local Government to Improve Water Quality		
	MAMSWaP	**RRSG**
I am not aware of any current efforts	14%	24%
I think activities are taking place, but I don't know very much about them	39%	50%
I am somewhat familiar with efforts to improve water quality in my community	41%	24%
I am very knowledgeable about existing efforts to improve water quality in my community	6%	2%
Support for Investment in Water Quality Efforts		
	MAMSWaP	**RRSG**
I support these efforts and would like us to be doing more, even if that costs more	57%	34%
I support these efforts at the current expenditure level	41%	61%
I would like my community to spend less on these efforts	2%	3%
I would like my community to stop investing in water quality improvements if it could	1%	2%

Current Practices: *"Already Do This"*		
	MAMSWaP	**RRSG**
Take used automotive oil to a recycling center	46%	58%
Have your oil changed at an automotive service center	88%	79%
Conduct soil tests to determine fertilizer application rates for your lawn	4%	8%
Apply chemical fertilizers only once or twice per year	42%	43%
Apply weed-killers only once or twice a year	39%	46%
Stop using chemical fertilizers and weed-killers completely	25%	13%
Use a fertilizer with no or limited amounts of phosphorus	33%	19%
Stop using salt to melt ice at your residence	28%	25%
Compost leaves and grass clippings in your yard	51%	54%
Compost leaves and grass clippings through a community program	30%	31%
Use a mulching lawnmower	63%	63%
Direct rain downspouts to your lawn rather than your driveway	76%	78%
Install a rain barrel or cistern to collect rainwater from your downspouts	10%	13%
Install a "rain garden" to intercept rainwater from your downspouts	11%	6%
Keep street gutters in front of your residence clear of grass clippings and leaves	49%	50%
Wash your car on your lawn	9%	20%
Wash your car at a car wash	78%	75%
Clean up and dispose of pet waste	47%	54%
Effectiveness of Water Quality Improvement Efforts in Community: "*Very Effective" + "Effective" Responses*		
	MAMSWaP	**RRSG**
Street sweeping	61%	61%
Installing "rain gardens"	59%	36%
Leaf & yard-waste collection	77%	71%
Developing infiltration facilities where stormwater can seep into the ground	67%	51%
Enforcing local erosion & stormwater ordinances	73%	58%
Restoring wetlands	79%	66%
Stenciled messages on streets/drains	29%	23%
Reducing salt usage for melting ice	65%	50%
Developing buffers along waterways & shorelands	68%	53%
Other	50%	37%

Contact if Stormwater Pollution Problem		
	MAMSWaP	**RRSG**
Don't know who to contact	25%	27%
My water utility	19%	21%
My municipal government	47%	35%
County government	9%	8%
Wisconsin Department of Natural Resources	19%	26%
An environmental, conservation, or watershed organization	9%	10%
Other	2%	3%
Information Sources in the Last Five Years Regarding Stormwater Pollution Issues		
	MAMSWaP	**RRSG**
Local newspaper	34%	26%
TV or radio	32%	33%
Community, municipality, neighborhood newsletter	28%	13%
Workshop	6%	11%
Displays	9%	6%
Public meeting	11%	14%
Internet	11%	6%
Other	16%	13%
Have Visited Web Sites		
	MAMSWaP	**RRSG**
myfairlakes.com	8%	1%
cleanwaterbrightfuture.org	1%	1%
RenewTheRock.com	0%	3%
Water Resource Usage and Activities in Last Calendar Year		
	MAMSWaP	**RRSG**
Motorized boating	24%	28%
Non-motorized boating or sailing	25%	16%
Fishing	26%	37%
Hunting	9%	21%
Swimming	23%	33%
Ice-skating or winter sports	20%	18%
Walking, jogging, birding, or similar uses	61%	46%
Scenic Appreciation	74%	60%
None of the Above	12%	18%
Type of Residence		
	MAMSWaP	**RRSG**
Single-family house	77%	85%
Duplex	2%	3%
Condominium/Townhouse	7%	5%
Apartment	12%	3%
Mobile home	1%	2%
Other	1%	1%

Member of an Environmental, Conservation, or Watershed Organization		
	MAMSWaP	RRSG
Yes	24%	10%
No	76%	90%
Gender		
	MAMSWaP	RRSG
Male	65%	68%
Female	35%	32%
Age		
	MAMSWaP	RRSG
18-24	2%	2%
25-34	12%	8%
35-44	11%	7%
45-54	18%	23%
55-64	21%	27%
65+	37%	33%
Highest Level of Education		
	MAMSWaP	RRSG
Less than high school	0%	1%
High school diploma	12%	31%
Some college/tech	15%	20%
Tech college graduate	6%	14%
Bachelor's degree	29%	20%
Grad or professional degree	37%	14%
Employment Status		
	MAMSWaP	RRSG
Self-Employed	9%	8%
Employed Full-Time	44%	42%
Employed Part-Time	6%	7%
Homemaker	1%	2%
Unemployed	1%	2%
Retired	36%	37%
Other	3%	3%
Household Income Level		
	MAMSWaP	RRSG
Less than $25,000	12%	15%
$25,000-34,999	7%	16%
$35,000-49,999	17%	14%
$50,000-74,999	22%	30%
$75,000-99,999	15%	13%
$100,000+	28%	11%

Appendix B – 2003 and 2013 Response Differences

Statistical tests were conducted using responses to questions asked on the 2003 and 2013 survey. A similar study was conducted in 2009, but raw data was not available for significance of difference testing purposes. Substantial modifications were made to the 2013 survey instrument. Questions had to be worded the same in both surveys to be comparable and appropriate for statistical testing.

We found 11 variables with statistically significant differences between the mean responses of these two groups (Table B1) out of 51 tested.

In 2013,

- fewer respondents said that once stormwater runoff leaves their neighborhood it goes to a field or infiltration basin.
- respondents are slightly more knowledgeable about efforts to improve water quality in their community than in 2003.
- respondents are more likely to say they need more information about taking used automotive oil to a recycling center
- respondents are less willing to conduct soil tests to determine fertilizer application rates for their lawn, less willing to stop using salt to melt ice at their residence, and are less willing to wash their car on their lawn.
- respondents are less likely to know who to contact if they became aware of a stormwater pollution problem.
- respondents to the survey are slightly older than the 2003 sample.
- respondents are more likely than in 2003 to say that they have used the water resources in and around their community for hunting and walking, jogging, birding, or similar uses.

Table B1 – Statistically Significant Differences Between Responses of 2003 and 2013

Variable	Mean *2013*	Mean *2003*	Statistical Significance
Q5 Stormwater leaving neighborhood: to field/infiltration basin	.05	.11	.024
Q7 Awareness of water quality efforts in community	2.38	2.17	.002
Q9a Current practices: take used oil to recycling ctr.	2.99	2.24	.000
Q9c Current practices: conduct soil tests	3.78	2.94	.000
Q9h Current practices: stop using salt to melt ice	2.74	2.36	.004
Q9p Current practices: wash car on lawn	3.87	3.45	.003
Q9q Current practices: wash car at car wash	1.63	1.37	.010
Q12 Contact: don't know who to contact	.25	.12	.000
Q20 Age	4.54	4.21	.010
Q24 Water Resource Activity: hunting	.09	.03	.003
Q24 Water Resource Activity: walking, jogging, birding	.60	.50	.027

Appendix C – Non-Response Bias Test

Any survey has to be concerned with "non-response bias." Non-response bias refers to a situation in which people who do not return a questionnaire have opinions that are systematically different from the opinions of those who return their surveys. For example, suppose most non-respondents do not agree that the overall water quality of the lakes located in and around their community is good (Question 2a), whereas most of those who returned their questionnaire believe lake water quality is good. In this case, non-response bias would exist, and the raw results would overstate the opinion of residents regarding the quality of lakes in their communities.

A standard way to test for non-response bias is to compare the responses of those who responded to the first invitation to take the questionnaire to those who responded to subsequent invitations. Those who respond to subsequent invitations are, in effect, samples of non-respondents (to the first invitation), and we assume that they are representative of that group. In this survey, 124 people responded to a first invitation and 62 responded to subsequent invitations.

We found nine variables with statistically significant differences between the mean responses of these two groups of respondents (Table C1) out of 101 tested. Table C1 indicates that even when statistical differences exist, the magnitude of this difference is small and did not impact the overall pattern of answers and the interpretation of the results.

A slightly higher percentage of non-respondents said that stormwater runoff does not contribute to negative impacts on wildlife habitat, while more respondents believe it is a minor contributor. A slightly larger percentage of respondents said that they support community efforts to improve the quality of local rivers, streams and lakes and would like to be doing more, even if it costs more while more non-respondents support current efforts at the current expenditure level.

The Survey Research Center (SRC) concludes that there is little evidence that non-response bias is a concern for this sample.

Table C1 – Statistically Significant Differences Between Responses of First Invitation and After Reminder

Variable	Mean *First Invitation*	Mean *After Reminder*	Statistical Significance
Q4 Leaving property, stormwater: Storm drain	.73	.58	.039
Q5 Leaving neighborhood, stormwater: Don't Know	.19	.32	.045
Q6d Stormwater runoff: Impacts on fish habitat	2.07	2.44	.042
Q6e Stormwater runoff: Impacts on habitat for wildlife	2.25	2.64	.027
Q6g Stormwater runoff : Impacts on swimming/beach	1.75	2.15	.020
Q8 Support investment in water quality	1.39	1.60	.024
Q11 Effectiveness of efforts: Restoring wetlands	1.70	2.36	.001
Q13 Stormwater pollution info: local newspaper	.40	.21	.010
Q24 In last year: fishing	.32	.15	.011

Appendix D – MAMSWaP Written Comments, 2013

Q4. When it rains or when snow melts on your property, where do you think the resulting stormwater goes? 'Other' responses

- In the lake/Into lakes/streams/Into the lake/Lake/To lake (7x)
- Holding pond/Retention pond (2x)
- Creek
- into the ground
- Lake Mendota
- Marsh
- Neighbors yard
- Park
- River close by, ultimately to Lake Monona.
- Yard

Q5. Where does stormwater runoff go once it leaves your neighborhood? 'Other' responses

- Depends
- Directly to the lake
- Live in country, drains are too low
- Woods

Q10. Of the practices listed in Question 9 that are applicable to your situation but you are not currently doing, what things prevent you from doing them?

a. Take used automobile oil to a recycling center

- Oil amounts are too small

b. Have your oil changed at an automotive service center

- Cost
- I change my own oil to save money and drop off waste oil at city garage
- They scratch my paint

c. Conduct soil tests to determine fertilizer application rates for your lawn

- Cost/Costs associated with test fertilizer levels in my soil (2x)
- Do soil test
- Lawn services have past tested soil. No longer use lawn services.
- No time/equipment
- People actually do that?
- Tests not easy to do
- Time and cost
- Unaware of methods to test soil for fertilizer.
- Using a service for these

d. Apply chemical fertilizers only once or twice per year

- Apply lawn pesticides and fertilizers only as needed.
- Landlord controls/cares this. Does a company.
- Using a service for these

e. Apply weed-killers only once or twice a year

- Control of invasive plants on my property currently requires roundup, but this is applied far from storm drains.
- I am on a farm and I need to use chemicals the way I need them.
- Landlord has the say, takes control of this responsibility
- Use occasionally to control weed growth, which is needed once and a while.
- Using a service for these
- Weeds are bad

f. Stop using chemical fertilizers and weed-killers completely

- Convenience
- Don't know of any other way of getting rid of crab grass
- I spot treat weeds only with limited chemical use. I don't feel this has had a huge impact in the environment.
- If I stop using weed killer, lawn will be overturn by weeds.
- Landlord has the say
- Lawn health
- Like a weed free lawn
- Like to keep my lawn healthy and green
- Need more information on effective means to control weeds.
- Not aware of chemical free weed & feed for lawns.
- Trust the lawn care company
- Use fertilizer and weed killer according to directions
- Use less chemicals
- Want to keep lawn healthy
- We do not use any chemicals or fertilizer.
- We do not use fertilizers or weed killer.
- Weed killing companies provide jobs to hard working Americans
- Weeds need to be controlled, especially dandelions
- Would do if there were organic alternatives

g. Use a fertilizer with no or limited amounts of phosphorus

- I don't use any fertilizer on my lawn and only compost in my garden
- I use fertilizer sparingly.
- Lawn health
- Phosphorous works better
- Using a service for these

h. Stop using salt to melt ice at your residence

- Safety/Safety reasons (3x)
- Don’t want to get sued/I don’t want to get sued if someone falls (2x)
- Already do this. However, neighbors frequently use- trying to be helpful.
- Application of product to melt salt on sidewalks is necessary as we live on a hilly block and walking is difficult when ice is always building up.
- Began to use only sand
- Community demands we treat sidewalks
- Does the salt used on a sidewalk during winter end up in the lake? Or is an impending lawsuit if someone falls more important?
- Feel responsible to melt ice to prevent falls on property.
- I live on a hill with steps to the front door; ice melt in the winter is a safety factor in winter.

- I use salt to keep my property safe, but only if I can't keep cleaning snow and ice with a shovel.
- I use salt to melt ice in winter. I'm not aware of alternatives or if they are really better.
- Lots of ice, slippery steps, small children.
- My wife insists on salt to melt ice.
- Need more info on how to eliminate ice on sidewalks beyond applying ice melt or manual removal
- Retirement community. Elderly residents need to have ice cleared.
- The few times a year I use salt is primarily when we have elderly visitors and I chip the whole sidewalk/driveway, too physically demanding after shoveling everything typically before, I do mix sand and salt though. But it is very important to prevent elderly falls on our residence.
- Use salt carefully to minimize falling on ice
- Very limited salt use- mostly we sand on ice, sparingly we need to use both for safety, on stairs and walks.
- We have icy spots on our driveway, and would need to fix the driveway grading to deal with the ice.
- We use sand salt combo on icy pavement and sidewalks to avoid injuries. Unaware of other effective methods to eliminate ice (which is a big problem for us).
- What other ways besides salt can be used to get rid of ice on our steps/sidewalks?
- Winter ice on walk ways are treacherous

i. Compost leaves and grass clippings in your yard

- Big trees with many leaves. Not enough room to compost all of them
- Don't have a compost pile or site.
- Have no need for compost
- I am currently reducing my amount of grass by 2/3 and using cardboard and leaf mulching to do so.
- I do not have enough room to compost leaves on site
- It is difficult because of the layout of our house/driveway.
- We have too many leaves to easily compost all of them in our yard.

j. Compost leaves and grass clipping through a community program

- As we compost our own materials, less likely to do so through a community program. But I'd want to know about removal benefits, costs.
- Don't believe this program exists
- Would be willing to participate in community compost if it were available.

k. Use a mulching lawnmower

- Have to mow more often
- I use a 30 year old mower with no mulch function
- Landlord does the mowing.
- Mulching lawn costs too much money
- Use mulching lawnmower
- We just leave our grass clippings on the yard to mulching.

l. Direct rain downspouts to your lawn rather than your driveway

- Currently direct rainwater to lawn collection
- Impractical
- My house has no gutters, water from roof falls directly to the lawn.

m. Install a rain barrel or cistern to collect rainwater from your downspouts

- Collecting rainwater is inconvenient and can flow onto lawn.
- Concern about mosquito overpopulation in rain barrel or cistern
- Concerned that water in barrel will overflow
- Cost
- Don’t want to be perceived as a tree-hugger

- Don't have a rain barrel
- I am from a community where the city sold rain barrels and compost containers at discounted prices. Stoughton should do this.
- I live in a small un-sewered hilltop subdivision in the Town of Middleton. Water flows into farm fields and ultimately, into the Sugar River. Nothing prevents me from installing rain barrels other than it is my choice not to.
- Inertia
- Installation needs to be easier or provided at reasonable cost.
- Mosquitos
- Very little of our runoff leaves our property so we haven't bothered to put in a rain barrel.
- We have rain barrels and rain garden.
- What do you do with the water, won't it overflow?

n. Install a "rain garden" to intercept rainwater from your downspouts

- A rain garden would be nice, we just haven't bothered. Right now it just slowly infiltrates.
- Already have problems with water pooling near the house. Hesitant to do anything that keeps water near the house
- Although we live in an apartment, we live on the ground floor and have a large flower garden where we do the things marked; the others are done by our landlord.
- Cost
- Don't know how to build
- I would like to further investigate rain garden options. My neighbors are willing to be a part of that process.
- Landlord won't allow it.
- No room for rain garden on hillside/lawn
- Rain garden takes work

o. Keep street gutters in front of your residence clear of grass clippings and leaves

- Time (2x)
- I after wish I could do this, but don't have the equipment or strength to carry the bags to a proper facility.
- I do clean the debris in the street
- The city street sweepers mainly do that
- Usually leave on lawn after mulching

p. Wash your car on your lawn

- Afraid soap will harm grass. Prefer to wash at home to save water and money.
- Can't wash care on my lawn – no room.
- Car washing on lawn is not practical- can't get access to lawn from driveway due to landscape/gardens next to drive.
- I don't wash them.
- I don't wash my cars at home and wouldn't drive them on the lawn.
- Inertia
- Is car soap ok for the lawn?
- Not enough level ground in front of a steep front yard to drive a car up onto grass.
- That is ghetto
- Washing car on lawn will result in rutted lawn and mud.
- Won't fit on lawn

q. Wash your car at a car wash

- Use the car wash

r. Clean up and dispose of pet waste

- Do not have pets/no pets (2x)
- Currently put pet waste in plastic bags, which collects in landfills. Would love another option.
- Not a factor – natural fertilizer
- Occasionally I run across pet waste on the sidewalk and I don't have pets so I think it's up to pet owners to clean up their own pet's waste.

Other Comments

- Done by a hired organization
- Don't drive and I am a renter.
- Haven't really thought about these actions.
- I do not own a home; the maintenance crew at my apartment complex handles it.
- I live in a house where I rent an apartment. I don't control the lawn care or drainage system around the house I live in.
- I live in a town home so I have limited control over many items above.
- I live in an apartment built for seniors, others make those choices.
- I live in an apartment.
- I need more information about alternative options.
- I would be willing to do when I have my own yard in the future. Currently not applicable.
- Just moved in, still getting set up.
- Just need to make the time to do them.
- Lack of personal knowledge of these things.
- Live in a condo
- Live in an apartment complex/do not own property
- Live in apartment, don't do any of these things
- More detail than care to provide.
- Need more info on some of the following
- Nothing but hatred for know-it-all Madison.
- Renter in multi-unit complex
- Since I rent an apartment, maybe direct suggestions at major rental management companies if not already. They could advertise their "water quality friendly" rentals.
- We don't take care of the lawn, live in condo, but willing to vote for more environmentally responsible practices. We appreciate your efforts to get us involved and help identify ways we can make an impact.
- We live in a condo. Association controls what can be and is done.
- We live in an apartment now; many of these are not applicable.
- We removed our grass last year and have natural gardens and vegetable gardens.

Q11. Please indicate how effective the following efforts can be to improve the water quality of lakes, streams and/or rivers in your community.

- Farm runoff/Limit farm runoff/Reduce animal wastes from farms going into waterways (3x)
- City cut weeds in lake
- Community education.
- Education in key neighborhoods about the effects of their actions and easy better alternatives.
- Enforce current laws
- Getting messages in other languages
- Gravel drives, pervious patios
- Instant solar powered filters on lake

- Limit chemical fertilizers
- Limit farm runoff
- Manage geese population
- More regular street sweeping. Our street stays dirty long periods.
- No big commercial wells
- Reduce development of marshland

Q12. Which of these would you contact if you became aware of a stormwater pollution problem (for example, a large amount of mud flowing into a storm drain)? 'Other' responses

- I am a renter.
- Not sure I would try to contact someone
- Our apartment manager
- Tom Schoeder, Maple Bluff

Q13. During the last five years, do you recall having received information regarding stormwater pollution issues and practices from any of these sources? 'Other' responses

- Academics, occupation
- Dane County Lakes and Watershed
- Door to door Clear Lakes Environment Society
- E-mail
- I am a renter
- Just moved here within the last 3 months from out of state
- Leaf and water information, signage on Kenosha Ave.
- Mailing
- Science Museum
- Water utility
- Work

Q15. If you have other things you'd like to say about stormwater runoff/water quality issues, please do so here. 32 responses

Issue of Water Quality

- Although the rainwater from my property flows south, as a fisherman who has used the Madison lakes for almost 50 years, I have personally observed the degradation in water quality at what appears to be an accelerating rate.
- How bad are things?
- I think these issues are very important and I appreciate the effort that the universities are putting into helping to resolve these issues.
- It needs to be addressed with a more serious effort!
- This is important to give serious attention to....but it's difficult to understand how bad the problem is, the urgency to do anything, and whether the proposals that are being advocated are the best way to proceed, given the self-interests that each party seems to have and the bickering among the parties and the various positions..... So I guess it's not full trust with relation to those addressing these issues.

Practices and Efforts

- Leaf collection and brush (especially this spring) sits for weeks/month at a time. Why don't the leaf collectors vacuum up the leaves laying in the street gutters? Most people don't sweep up and the drains a few are covered.

- Let me know what I can do personally to help. Micro, Mezzo, Macro. Some citizens may be oblivious to damages done by private practices.
- Pay residents to adopt storm drains.
- We live in an urban wooded area. To compost all our leaves on site is not practical. Construction runoff lacks enforcement.
- What alternatives are there to using salt for a steep, slippery driveway when it is icy?

Lakes/Rivers

- I moved to Madison in 1967. I can assume lakes are far cleaner with less weed growth and algae than in 1967. I am on 3 lakes around 65 times a year, so I am a pretty good judge of lake property.
- I'm basing my estimate of lake and river health on the clear lakes and rivers up north. Maybe this isn't appropriate. Could lakes and rivers in Southern, WI look like those in North Wisconsin?
- Need to cure algae in lakes
- Our lakes have been weedy ever since we moved to Dane County in 1963.

Agriculture

- An effective solution needs to be developed to reduce phosphorus loads from Agriculture sources. The algae growth would diminish then.
- Farm runoff during June rain deposited 8" of mud in front of my shoreline this year.
- Reducing animal manure and soil run-off from farms can be the biggest reduction in nutrient load to our waterway-add construction and focus on these efforts and continue general education, will gain biggest bang for the buck!

Development

- I think the construction companies need to do more to prevent erosion therefore resulting in less debris in the lakes.
- I'm generally fairly appalled at the lack of respect the lakes in Madison get. The city is missing basics like requiring lakefront homeowners to leave a portion of their water frontage undeveloped/native plantings and keeping the lakes at lower depth so the Cherokee wetlands can actually flourish and help cleanse the water.
- Unfortunately, these issues should have been addressed decades ago. I feel it is likely too late to do much for the Madison Chain of Lakes (due to the dense development around all the lakes & rivers/marshland). Not sure about the outlaying lakes and rivers to the west. Hopefully communities will curb development of marshlands and watersheds in these towns.

DNR

- Get the State-DNR lead- to support low impact design and/or green infrastructure. Support walkable green streets, plant trees in correct locations- a tree is a vertical rain garden and great for urban areas which lack previous surfaces- check out Silvia Cells- stop increasing size of discharge pipes- reduce volume! In regards to the Chop Down All Your Trees brochure, this was a stupid and wasteful effort. People need to get the message ASAP- they are scanners not readers- this brochure series was non-effective. Also, the 'feel-good' legislation on lawn fertilizer should have been directed to ag/manure runoff. Concentrate on the biggies- finally a manure digester!
- I have friends who have told me and have seen myself some of the clean-up ground springs and river/streams going on by the DNR. The funding should continue making farmers aware of cattle grazing to close to rivers and streams and keeping developers away from these areas as well. Dams are stupid, flooding is a natural cleanser.

Flooding

- Flooding in my neighborhood has caused my basement to flood two times in the last 6 years causing major damage to basement. Village denied that there was flooding/draining issues- blamed water table.

Information/Education

- Have brochures in different languages, distributed to homes that demonstrate what happens to trash once it is thrown on the ground.

Pollution

- Stoughton is a major polluter, should be forced to relocate to industrial park.

Miscellaneous

- Annual occurrence in spring.
- How much state money went into preparing this moronic questionnaire?
- I think a major contributor to chemical fertilizer runoff are law services. I have witnessed many times fertilizer being overspread on sidewalk and driveways and not swept after they are done.
- It is obvious that I need time to think about this and educate myself.
- Need to manage geese population which is a major contribution to spreading invasive species.
- Nice survey, big effort. Thanks.
- Our neighborhood has no sewers. All the lots have rain gardens.

Q16. What is your zip code?

- 43489
- 52716
- 53190
- 53527
- 53532 (3x)
- 53558 (6x)
- 53562 (6x)
- 53589 (5x)
- 53590 (11x)
- 53593 (9x)
- 53597 (7x)
- 53598 (4x)
- 53703 (7x)
- 53704 (18x)
- 53705 (16x)
- 53709
- 53711 (26x)
- 53713 (10x)
- 53714 (13x)
- 53715 (3x)
- 53716 (7x)
- 53717 (6x)
- 53718 (2x)
- 53719 (11x)
- 53726 (3x)

Q17. Which of the following best describes your current residence? 'Other' responses

- Farm

Q22. Your current employment status. 'Other' responses

- Disabled (2x)
- Student (2x)

Appendix E – Quantitative Summary of Responses 2013 Survey

186 Usable Responses

Your Views on the Health of Our Lakes, Rivers and Streams

This survey is conducted by the University of Wisconsin-River Falls Survey Research Center on behalf of 29 area communities, Dane County, UW-Whitewater and UW-Madison. Results will help programs for protecting and improving water resources in your community.

Thank you for completing this questionnaire. Please answer all questions by filling in the circle that best matches your response and writing any information requested. Don't worry about providing the "right" answer – the study is interested in gathering information about general perceptions of water resources and water quality issues. Thanks for your help!

Your Perceptions of Local Water Resources

1. How would you rate the overall water quality of the lakes, rivers, and streams located in the area on the map printed on the front cover?

	Very Poor	Poor	Good	Very Good	Don't Know
a. Lakes	3%	42%	37%	5%	12%
b. Rivers and streams	2%	28%	43%	10%	18%

2. How would you rate the water quality of the lakes, rivers, and streams located in and around the community/town in which you live?

	Very Poor	Poor	Good	Very Good	Don't Know
a. Lakes	9%	44%	32%	6%	9%
b. Rivers and streams	5%	33%	39%	9%	15%

3. To what extent do you believe each of the following items contributes to water quality problems in lakes, rivers, and streams in and around the community/town in which you live?

	Major Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
a. Pet waste	4%	51%	19%	27%
b. Improper disposal of used motor oil & antifreeze	7%	51%	10%	32%
c. Air pollution from industrial activities	20%	48%	12%	21%
d. Lawn/urban fertilizers and pesticides	58%	32%	2%	8%
e. Manure from farm animals	55%	29%	4%	12%
f. Discharges from sewage treatment plants	26%	37%	9%	28%
g. Stormwater runoff from streets & highways	54%	32%	5%	10%
h. Stormwater runoff from residential rooftops and driveways	24%	55%	11%	10%
i. Stormwater runoff from non-residential rooftops & parking lots	37%	41%	8%	14%
j. Grass clippings and leaves	30%	47%	14%	10%
k. Soil erosion from construction sites	22%	57%	5%	16%
l. Street salt and sand	46%	42%	4%	8%
m. Discharges from industry	35%	40%	5%	20%
n. Agricultural fertilizers and pesticides	64%	19%	3%	14%
o. Soil erosion from farm fields	35%	39%	8%	18%
p. Improper disposal of hazardous household wastes	20%	51%	7%	22%

4. When it rains or when snow melts on your property, where do you think the resulting stormwater goes? (Please select all that apply)

I don't know	Into a storm drain	Into a ditch	Doesn't leave my property	Other ***See Appendix D***
5%	69%	15%	10%	9%

5. Where does stormwater runoff go once it leaves your neighborhood? (Please select all that apply)

I don't know	To a creek, stream, river or lake without treatment	To a sewage treatment system	To a holding pond	To a field or infiltration basin	Other ***See Appendix D***
24%	48%	16%	11%	5%	3%

6. To the best of your knowledge, after it rains or when snow melts, to what extent does the resulting stormwater runoff contribute to the following problems in your community?

		Major Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
a.	Flooding	34%	40%	14%	11%
b.	Increased numbers of zebra mussels	5%	10%	35%	51%
c.	Weed & algae growth in lakes	59%	20%	8%	13%
d.	Negative impacts on fish habitat	34%	35%	10%	21%
e.	Negative impacts on habitat for wildlife	23%	40%	14%	23%
f.	The quality of local drinking water	12%	32%	31%	25%
g.	Negative impacts on local swimming and beach areas	47%	31%	9%	13%
h.	Delivery of sediment to local lakes and streams	52%	31%	3%	15%
i.	Increased temperatures in lakes and streams	24%	22%	16%	38%
j.	Reduction in normal or "base" flow of local streams (e.g. flow when it's not raining)	17%	20%	19%	43%
k.	Less recharge of local aquifers	14%	19%	13%	54%

7. Which of the following statements best describes your level of awareness about current efforts by your local government to improve the water quality of lakes, streams and/or rivers in your community?

14% I am not aware of any current efforts

39% I think activities are taking place, but I don't know very much about them

41% I am somewhat familiar with efforts to improve water quality in my community

6% I am very knowledgeable about existing efforts to improve water quality in my community

8. Your community <u>is</u> actively working to improve the quality of local rivers, streams and lakes by reducing pollutants in stormwater runoff, and would like to know if you support this investment in water quality.

57% I support these efforts and would like us to be doing more, even if that costs more

41% I support these efforts at the current expenditure level

2% I would like my community to spend less on these efforts

1% I would like my community to stop investing in water quality improvements if it could

Practices and Efforts

9. Which of the following responses best describes your current practices?

		Already do this	Willing to do	Need more Info	Unwilling to do	Not Applicable
a.	Take used automotive oil to a recycling center	46%	4%	1%	2%	47%
b.	Have your oil changed at an automotive service center	88%	3%	1%	2%	6%
c.	Conduct soil tests to determine fertilizer application rates for your lawn	4%	19%	20%	7%	49%
d.	Apply chemical fertilizers only once or twice per year	42%	9%	4%	7%	38%
e.	Apply weed-killers only once or twice a year	39%	11%	5%	7%	38%
f.	Stop using chemical fertilizers and weed-killers completely	25%	11%	18%	28%	18%
g.	Use a fertilizer with no or limited amounts of phosphorus	33%	22%	10%	5%	31%
h.	Stop using salt to melt ice at your residence	28%	21%	16%	22%	13%
i.	Compost leaves and grass clippings in your yard	51%	16%	3%	10%	18%
j.	Compost leaves and grass clippings through a community program	30%	22%	6%	6%	36%
k.	Use a mulching lawnmower	63%	12%	3%	3%	18%
l.	Direct rain downspouts to your lawn rather than your driveway	76%	8%	3%	2%	11%
m.	Install a rain barrel or cistern to collect rainwater from your downspouts	10%	35%	14%	17%	24%
n.	Install a “rain garden” to intercept rainwater from your downspouts	11%	27%	23%	16%	23%
o.	Keep street gutters in front of your residence clear of grass clippings and leaves	49%	24%	3%	3%	21%
p.	Wash your car on your lawn	9%	16%	5%	19%	51%
q.	Wash your car at a car wash	78%	7%	0%	5%	11%
r.	Clean up and dispose of pet waste	47%	3%	1%	1%	48%

10. Of the practices listed in Question 9 that are applicable to your situation but you are not currently doing, what things prevent you from doing them? Please refer to each action by its letter. ***See Appendix D***

11. Please indicate how effective the following efforts can be to improve the water quality of lakes, streams and/or rivers in your community.

		Very Effective	Effective	Somewhat Effective	Not Effective	Don't Know
a.	Street sweeping	26%	35%	23%	3%	14%
b.	Installing "rain gardens"	16%	43%	14%	3%	24%
c.	Leaf & yard-waste collection	39%	38%	16%	2%	6%
d.	Developing infiltration facilities where stormwater can seep into the ground	32%	35%	12%	3%	18%
e.	Enforcing local erosion & stormwater ordinances	34%	39%	11%	3%	13%
f.	Restoring wetlands	53%	26%	6%	3%	11%
g.	Stenciled messages on streets/drains	9%	20%	30%	18%	23%
h.	Reducing salt usage for melting ice	27%	38%	22%	2%	11%
i.	Developing buffers along waterways & shorelands	35%	33%	10%	1%	22%
j.	Other, ***See Appendix D***	42%	8%	0%	0%	50%

Information Sources

12. Which of these would you contact if you became aware of a stormwater pollution problem (for example, a large amount of mud flowing into a storm drain)? Check all you would contact.

25% Don't know who to contact

47% My municipal government

19% Wisconsin Department of Natural Resources

2% Other ***See Appendix D***

19% My water utility

9% County government

9% An environmental, conservation, or watershed organization

13. During the last five years, do you recall having received information regarding stormwater pollution issues and practices from any of these sources? (Check those you recall – leave blank if you haven't received such info).

34% Local newspaper

28% Community, municipality, neighborhood newsletter

9% Displays

11% Internet

32% TV or radio

6% Workshop

11% Public meeting

16% Other ***See Appendix D***

14. Have you ever visited the following web sites?

	Yes	No	Not Sure
a. www.myfairlakes.com	8%	90%	2%
b. www.cleanwaterbrightfuture.org	1%	97%	2%
c. www.RenewTheRock.com	0%	96%	4%

15. If you have other things you'd like to say about stormwater runoff/water quality issues, please do so here. ***See Appendix D***

Information About You and Your Residence

These questions are included to compare the total group participating in this survey with the general populations of the communities involved.

16. What is your zip code? *See Appendix D*

17. Which of the following best describes your current residence?

77% Single-family house
7% Condominium/Townhouse
1% Mobile home
2% Duplex
12% Apartment
1% Other ***See Appendix D***

18. Are you currently a member of an environmental, conservation, or watershed organization?

24% Yes
76% No

19. Your gender

Male	Female
65%	35%

20. Your age

18–24	25–34	35–44	45–54	55–64	65+
2%	12%	11%	18%	21%	37%

21. Your highest level of education

Less than high school	High school diploma	Some college/ tech	Tech college graduate	Bachelor's degree	Grad or professional degree
0%	12%	15%	6%	29%	37%

22. Your current employment status

Self-Employed	Employed Full-Time	Employed Part-time	Home-maker	Un-employed	Retired	Other ***See Appendix D***
9%	44%	6%	1%	1%	36%	3%

23. Your household income level

Less than $25,000	$25,000 – 34,999	$35,000 – 49,999	$50,000 – 74,999	$75,000 $99,999	$100,000+
12%	7%	17%	22%	15%	28%

24. During the last calendar year, in which of the following ways have you used the water resources in and around your community? (Please check all that you did)

24% Motorized boating
25% Non-motorized boating or sailing
26% Fishing
9% Hunting
23% Swimming
20% Ice-skating or winter sports
61% Walking, jogging, birding, or similar uses
74% Scenic appreciation
12% None of the above

Phase 2: 2014 Online Follow-Up Survey

A follow-up, online survey was conducted in January 2014. The URL to the survey was sent to MAMSWaP committee members by Marcia Hartwig with the encouragement to send to MAMSWaP area residents via email, website posting, newsletter inclusion, etc. A total of 260 usable surveys were submitted in January 2014. The SRC cannot determine how representative the survey respondents were of households in the Joint Storm Water Permit Group area. The survey's response rate and confidence level cannot be determined due to the survey's deployment methods.

Perceptions of Local Water Resources

- Thirty-five percent of respondents rated water quality of lakes in their community as "good" or "very good" while 32% of respondents rated lake water quality in the map area as "good" or "very good".
- Fifty-five percent of respondents rated river and stream water quality in their community as "good" or "very good" while 51% of respondents rated river and stream water quality in the map area as "good" or "very good".
- Approximately 1 in 4 respondents stated that stormwater from rain or snowmelt doesn't leave their property.
- Sixty-two percent of respondents stated that once it leaves their neighborhood, stormwater runoff goes to a creek, stream, river or lake.
- Respondents most identified agricultural fertilizers and pesticides as major contributors to water quality problems (78%), followed closely by stormwater runoff from streets and highways (73%), and lawn/urban fertilizers and pesticides and manure from farm animals (both at 71%).
- According to a majority of respondents, stormwater runoff is a major contributor to the delivery of sediment to local lakes and stream (62%), and weed and algae growth in lakes (57%).

Practices and Efforts

- Practices that respondents "already do" most frequently to reduce water pollution are having their car oil changed at an automotive service center (93%), washing their car at a car wash (87%), and directing downspouts to their lawn rather than their driveway (85%).
- The practice that respondents are most "willing to do" to reduce water pollution is install a rain barrel or cistern to collect rainwater from downspouts (42%), while the practice that respondents are least willing to do, or "unwilling to do," is stop using chemical fertilizers and weed-killers completely (29%), and stop using salt to melt ice at their residence (22%).
- Respondents to some extent are generally aware of efforts by local governments to improve water quality, with 49% being somewhat familiar with efforts, and 29% thinking that activities are taking place, but not knowing very much about them.
- The water quality improvement efforts at the local level that respondents believe are the most effective ("very effective" + "effective") are the restoration of wetlands (86%), leaf and yard-waste collection (84%), and enforcing local erosion and stormwater ordinances (83%).

- Scenic appreciation and walking, jogging, birding, or similar uses are the most popular uses of local water resources.

Information Sources

- Approximately two-thirds of survey respondents would contact their municipal government if they became aware of a stormwater pollution problem.
- If respondents receive information about water pollution issues and practices, it generally comes from local newspapers or community newsletters. Approximately one-fourth of survey respondents have visited *myfairlakes.com*.

Survey Sample

- Ninety-two percent of respondents live in single-family homes. Eighty-eight percent of respondents had household incomes of $50,000 and above. Respondents were generally older (45+), and had achieved a high level of education (88%, 4 year or advanced degree).

Appendix F – Quantitative Summary of Responses 2014 Online Follow-up Survey

260 usable responses

Your Views on the Health of Our Lakes, Rivers and Streams

This survey is conducted by the University of Wisconsin-River Falls Survey Research Center on behalf of 29 area communities, Dane County, UW-Whitewater and UW-Madison. Results will help programs for protecting and improving water resources in your community.

Thank you for completing this questionnaire. Please answer all questions by filling in the circle that best matches your response and writing any information requested. Don't worry about providing the "right" answer – the study is interested in gathering information about general perceptions of water resources and water quality issues. Thanks for your help!

Your Perceptions of Local Water Resources

5. How would you rate the overall water quality of the lakes, rivers, and streams located in the area on the map printed on the front cover?

	Very Poor	Poor	Good	Very Good	Don't Know
a. Lakes	11%	42%	29%	3%	14%
b. Rivers and streams	4%	23%	43%	8%	22%

6. How would you rate the water quality of the lakes, rivers, and streams located in and around the community/town in which you live?

	Very Poor	Poor	Good	Very Good	Don't Know
a. Lakes	14%	44%	31%	4%	7%
b. Rivers and streams	6%	26%	44%	11%	13%

7. To what extent do you believe each of the following items contributes to water quality problems in lakes, rivers, and streams in and around the community/town in which you live?

	Major Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
q. Pet waste	5%	51%	24%	20%
r. Improper disposal of used motor oil & antifreeze	11%	56%	11%	23%
s. Air pollution from industrial activities	20%	53%	11%	16%
t. Lawn/urban fertilizers and pesticides	71%	24%	3%	2%
u. Manure from farm animals	71%	21%	3%	5%
v. Discharges from sewage treatment plants	25%	37%	19%	18%
w. Stormwater runoff from streets & highways	73%	20%	3%	4%
x. Stormwater runoff from residential rooftops and driveways	38%	50%	8%	4%
y. Stormwater runoff from non-residential rooftops & parking lots	48%	42%	5%	5%
z. Grass clippings and leaves	32%	49%	11%	8%
aa. Soil erosion from construction sites	32%	47%	8%	12%
bb. Street salt and sand	54%	38%	3%	5%
cc. Discharges from industry	31%	48%	9%	12%
dd. Agricultural fertilizers and pesticides	78%	16%	3%	3%
ee. Soil erosion from farm fields	56%	30%	6%	8%
ff. Improper disposal of hazardous household wastes	21%	53%	12%	14%

8. When it rains or when snow melts on your property, where do you think the resulting stormwater goes? (Please select all that apply)

I don't know	Into a storm drain	Into a ditch	Doesn't leave my property	Other: ***See Appendix H***
2%	43%	40%	23%	15%

25. Where does stormwater runoff go once it leaves your neighborhood? (Please select all that apply)

I don't know	To a creek, stream, river or lake without treatment	To a sewage treatment system	To a holding pond	To a field or infiltration basin	Other: ***See Appendix H***
9%	62%	5%	19%	25%	3%

26. To the best of your knowledge, after it rains or when snow melts, to what extent does the resulting stormwater runoff contribute to the following problems in your community?

		Major Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
l.	Flooding	34%	43%	18%	5%
m.	Increased numbers of zebra mussels	3%	11%	45%	42%
n.	Weed & algae growth in lakes	57%	26%	9%	8%
o.	Negative impacts on fish habitat	48%	31%	9%	12%
p.	Negative impacts on habitat for wildlife	28%	45%	11%	16%
q.	The quality of local drinking water	14%	41%	30%	14%
r.	Negative impacts on local swimming and beach areas	49%	26%	14%	11%
s.	Delivery of sediment to local lakes and streams	62%	24%	7%	7%
t.	Increased temperatures in lakes and streams	25%	33%	14%	29%
u.	Reduction in normal or "base" flow of local streams (e.g. flow when it's not raining)	15%	30%	18%	37%
v.	Less recharge of local aquifers	20%	24%	17%	38%

27. Which of the following statements best describes your level of awareness about current efforts by your local government to improve the water quality of lakes, streams and/or rivers in your community?

8% I am not aware of any current efforts

29% I think activities are taking place, but I don't know very much about them

49% I am somewhat familiar with efforts to improve water quality in my community

14% I am very knowledgeable about existing efforts to improve water quality in my community

28. Your community <u>is</u> actively working to improve the quality of local rivers, streams and lakes by reducing pollutants in stormwater runoff, and would like to know if you support this investment in water quality.

67% I support these efforts and would like us to be doing more, even if that costs more

28% I support these efforts at the current expenditure level

5% I would like my community to spend less on these efforts

1% I would like my community to stop investing in water quality improvements if it could

Practices and Efforts

29. Which of the following responses best describes your current practices?

		Already do this	Willing to do	Need more Info	Unwilling to do	Not Applicable
s.	Take used automotive oil to a recycling center	50%	4%	0%	0%	46%
t.	Have your oil changed at an automotive service center	93%	2%	0%	2%	3%
u.	Conduct soil tests to determine fertilizer application rates for your lawn	13%	28%	16%	8%	35%
v.	Apply chemical fertilizers only once or twice per year	45%	10%	7%	3%	35%
w.	Apply weed-killers only once or twice a year	51%	12%	5%	4%	29%
x.	Stop using chemical fertilizers and weed-killers completely	24%	16%	22%	29%	9%
y.	Use a fertilizer with no or limited amounts of phosphorus	48%	18%	7%	3%	24%
z.	Stop using salt to melt ice at your residence	34%	21%	17%	22%	6%
aa.	Compost leaves and grass clippings in your yard	67%	11%	6%	7%	9%
bb.	Compost leaves and grass clippings through a community program	30%	23%	9%	8%	30%
cc.	Use a mulching lawnmower	76%	9%	4%	1%	10%
dd.	Direct rain downspouts to your lawn rather than your driveway	85%	7%	2%	0%	7%
ee.	Install a rain barrel or cistern to collect rainwater from your downspouts	17%	42%	17%	13%	11%
ff.	Install a “rain garden” to intercept rainwater from your downspouts	15%	39%	22%	11%	12%
gg.	Keep street gutters in front of your residence clear of grass clippings and leaves	49%	14%	0%	1%	36%
hh.	Wash your car on your lawn	16%	18%	6%	14%	47%
ii.	Wash your car at a car wash	87%	8%	0%	1%	4%
jj.	Clean up and dispose of pet waste	53%	5%	0%	2%	40%

30. Of the practices listed in Question 9 that are applicable to your situation but you are not currently doing, what things prevent you from doing them? Please refer to each action by its letter. ***See Appendix H***

31. Please indicate how effective the following efforts can be to improve the water quality of lakes, streams and/or rivers in your community.

		Very Effective	Effective	Somewhat Effective	Not Effective	Don't Know
k.	Street sweeping	25%	33%	23%	4%	16%
l.	Installing "rain gardens"	31%	35%	21%	4%	9%
m.	Leaf & yard-waste collection	44%	40%	8%	3%	6%
n.	Developing infiltration facilities where stormwater can seep into the ground	53%	27%	6%	2%	12%
o.	Enforcing local erosion & stormwater ordinances	54%	29%	8%	2%	6%
p.	Restoring wetlands	63%	23%	8%	2%	4%
q.	Stenciled messages on streets/drains	12%	18%	35%	20%	15%
r.	Reducing salt usage for melting ice	33%	39%	18%	5%	5%
s.	Developing buffers along waterways & shorelands	52%	28%	8%	2%	10%
t.	Other ***See Appendix H***	33%	8%	2%	0%	56%

Information Sources

32. Which of these would you contact if you became aware of a stormwater pollution problem (for example, a large amount of mud flowing into a storm drain)? Check all you would contact.

14% Don't know who to contact
9% My water utility
65% My municipal government
18% County government
38% Wisconsin Department of Natural Resources
10% An environmental, conservation, or watershed organization
5% Other: ***See Appendix H***

33. During the last five years, do you recall having received information regarding stormwater pollution issues and practices from any of these sources? (Check those you recall – leave blank if you haven't received such info).

52% Local newspaper
38% TV or radio
48% Community, municipality, neighborhood newsletter
8% Workshop
16% Displays
19% Public meeting
7% Other: ***See Appendix H***

34. Have you ever visited the following web sites?

	Yes	No	Not Sure
a. www.myfairlakes.com	23%	75%	2%
b. www.cleanwaterbrightfuture.org	4%	94%	2%
c. www.RenewTheRock.com	4%	95%	1%

35. If you have other things you'd like to say about stormwater runoff/water quality issues, please do so here. ***See Appendix H***

Information About You and Your Residence

These questions are included to compare the total group participating in this survey with the general populations of the communities involved.

36. What is your zip code? *See Appendix H*

37. Which of the following best describes your current residence?

92% Single-family house
3% Condominium/Townhouse
0% Mobile home
0% Duplex
3% Apartment
2% Other: ***See Appendix H***

38. Are you currently a member of an environmental, conservation, or watershed organization?

30% Yes
70% No

39. Your gender

Male	Female
54%	46%

40. Your age

18–24	25–34	35–44	45–54	55–64	65+
0%	10%	15%	21%	30%	24%

41. Your highest level of education

Less than high school	High school diploma	Some college/ tech	Tech college graduate	Bachelor's degree	Grad or professional degree
0%	2%	10%	4%	48%	36%

42. Your current employment status

Self-Employed	Employed Full-Time	Employed Part-time	Home-maker	Un-employed	Retired	Other: ***See Appendix H***
13%	49%	8%	2%	0%	25%	3%

43. Your household income level

Less than $25,000	$25,000 – 34,999	$35,000 – 49,999	$50,000 – 74,999	$75,000 $99,999	$100,000+
2%	3%	7%	21%	25%	42%

44. During the last calendar year, in which of the following ways have you used the water resources in and around your community? (Please check all that you did)

30% Motorized boating
35% Non-motorized boating or sailing
32% Fishing
9% Hunting
35% Swimming
28% Ice-skating or winter sports
80% Walking, jogging, birding, or similar uses
88% Scenic appreciation
4% None of the above

Appendix G – MAMSWaP 2014 Online Survey vs. 2013 Mail/Online Results

Phase 1: The *Your Views on the Health of Our Lakes, Rivers and Streams* survey was initiated by the Madison Area Municipal Storm Water Partnership (MAMSWaP) in October and November 2013 with assistance from the Survey Research Center (SRC) at the University of Wisconsin-River Falls. The initial survey used a multiple mailing method (3 contacts: first survey, postcard reminder, second survey). The invitation offered the option to complete the survey online and provided the survey's URL. A total of 186 out of 955 usable surveys (19%) were collected for MAMSWaP in 2013.

Phase 2: A follow-up, online survey was conducted in January 2014. The URL to the survey was sent to MAMSWaP committee members by Marcia Hartwig with the encouragement to send to residents via email, website posting, newsletter inclusion, etc. A total of 260 usable surveys were submitted in January 2014.

The survey instruments used for both phases were identical. Data summaries for each quantitative survey question are in **Table B1** highlighting the responses from 2013 and 2014.

Table B1: Quantitative Summary of Responses by Question: Comparison of MAMSWaP 2014 Online and MAMSWaP 2013 Mail/Online Results		
Overall Water Quality of Lakes, Rivers, and Steams Located in the Area on the Map – Rock River Watershed: *"Very Good" + "Good" Responses*		
	MAMSWaP 2014	**MAMSWaP 2013**
Lakes	32%	42%
Rivers and Streams	51%	53%
Overall Water Quality of Lakes, Rivers, and Steams Located in and around the Community/Town in Which you Live: *"Very Good" + "Good" Responses*		
	MAMSWaP 2014	**MAMSWaP 2013**
Lakes	35%	38%
Rivers and Streams	55%	48%
***"Major Contributor"* to Water Quality Problems in Lakes, Rivers, and Streams Located in and around the Community/Town in Which you live**		
	MAMSWaP 2014	**MAMSWaP 2013**
Pet waste	5%	4%
Improper disposal of used motor oil & antifreeze	11%	7%
Air pollution from industrial activities	20%	20%
Lawn/urban fertilizers and pesticides	71%	58%
Manure from farm animals	71%	55%
Discharges from sewage treatment plants	25%	26%
Stormwater runoff from streets & highways	73%	54%
Stormwater runoff from residential rooftops and driveways	38%	24%

"Major Contributor" to Water Quality Problems in Lakes, Rivers, and Streams Located in and around the Community/Town in Which you live (cont.)		
	MAMSWaP 2014	**MAMSWaP 2013**
Stormwater runoff from non-residential rooftops & parking lots	48%	37%
Grass clippings and leaves	32%	30%
Soil erosion from construction sites	32%	22%
Street salt and sand	54%	46%
Discharges from industry	31%	35%
Agricultural fertilizers and pesticides	78%	64%
Soil erosion from farm fields	56%	35%
Improper disposal of hazardous household wastes	21%	20%
Where Stormwater Goes When It Leaves Property		
	MAMSWaP 2014	**MAMSWaP 2013**
I don't know	2%	5%
Into a storm drain	43%	69%
Into a ditch	40%	15%
Doesn't leave my property	23%	10%
Other	15%	9%
Where Stormwater Goes When It Leaves Neighborhood		
	MAMSWaP 2014	**MAMSWaP 2013**
I don't know	9%	24%
To a creek, stream, river or lake without treatment	62%	48%
To a sewage treatment system	5%	16%
To a holding pond	19%	11%
To a field or infiltration basin	25%	5%
Other	3%	3%
Extent to Which Stormwater Runoff is a *"Major Contributor"* to this Problem in Your Community		
	MAMSWaP 2014	**MAMSWaP 2013**
Flooding	34%	34%
Increased numbers of zebra mussels	3%	5%
Weed & algae growth in lakes	57%	59%
Negative impacts on fish habitat	48%	34%
Negative impacts on habitat for wildlife	28%	23%
The quality of local drinking water	14%	12%
Negative impacts on local swimming and beach areas	49%	47%
Delivery of sediment to local lakes and streams	62%	52%
Increased temperatures in lakes and streams	25%	24%
Reduction in normal or "base" flow of local streams (e.g. flow when it's not raining)	15%	17%
Less recharge of local aquifers	20%	14%

Awareness of Current Efforts by Local Government to Improve Water Quality		
	MAMSWaP 2014	**MAMSWaP 2013**
I am not aware of any current efforts	8%	14%
I think activities are taking place, but I don't know very much about them	29%	39%
I am somewhat familiar with efforts to improve water quality in my community	49%	41%
I am very knowledgeable about existing efforts to improve water quality in my community	14%	6%
Support for Investment in Water Quality Efforts		
	MAMSWaP 2014	**MAMSWaP 2013**
I support these efforts and would like us to be doing more, even if that costs more	67%	57%
I support these efforts at the current expenditure level	28%	41%
I would like my community to spend less on these efforts	5%	2%
I would like my community to stop investing in water quality improvements if it could	1%	1%
Current Practices: *"Already Do This"*		
	MAMSWaP 2014	**MAMSWaP 2013**
Take used automotive oil to a recycling center	50%	46%
Have your oil changed at an automotive service center	93%	88%
Conduct soil tests to determine fertilizer application rates for your lawn	13%	4%
Apply chemical fertilizers only once or twice per year	45%	42%
Apply weed-killers only once or twice a year	51%	39%
Stop using chemical fertilizers and weed-killers completely	24%	25%
Use a fertilizer with no or limited amounts of phosphorus	48%	33%
Stop using salt to melt ice at your residence	34%	28%
Compost leaves and grass clippings in your yard	67%	51%
Compost leaves and grass clippings through a community program	30%	30%
Use a mulching lawnmower	76%	63%
Direct rain downspouts to your lawn rather than your driveway	85%	76%
Install a rain barrel or cistern to collect rainwater from your downspouts	17%	10%
Install a "rain garden" to intercept rainwater from your downspouts	15%	11%
Keep street gutters in front of your residence clear of grass clippings and leaves	49%	49%
Wash your car on your lawn	16%	9%
Wash your car at a car wash	87%	78%
Clean up and dispose of pet waste	53%	47%

Effectiveness of Water Quality Improvement Efforts in Community: "*Very Effective" + "Effective" Responses*		
	MAMSWaP 2014	**MAMSWaP 2013**
Street sweeping	58%	61%
Installing "rain gardens"	66%	59%
Leaf & yard-waste collection	84%	77%
Developing infiltration facilities where stormwater can seep into the ground	80%	67%
Enforcing local erosion & stormwater ordinances	83%	73%
Restoring wetlands	86%	79%
Stenciled messages on streets/drains	30%	29%
Reducing salt usage for melting ice	72%	65%
Developing buffers along waterways & shorelands	80%	68%
Other	41%	50%
Contact if Stormwater Pollution Problem		
	MAMSWaP 2014	**MAMSWaP 2013**
Don't know who to contact	14%	25%
My water utility	9%	19%
My municipal government	65%	47%
County government	18%	9%
Wisconsin Department of Natural Resources	38%	19%
An environmental, conservation, or watershed organization	10%	9%
Other	5%	2%
Information Sources in the Last Five Years Regarding Stormwater Pollution Issues		
	MAMSWaP 2014	**MAMSWaP 2013**
Local newspaper	52%	34%
TV or radio	38%	32%
Community, municipality, neighborhood newsletter	48%	28%
Workshop	8%	6%
Displays	16%	9%
Public meeting	19%	11%
Internet	32%	11%
Other	7%	16%
Have Visited Web Sites		
	MAMSWaP 2014	**MAMSWaP 2013**
myfairlakes.com	23%	8%
cleanwaterbrightfuture.org	4%	1%
RenewTheRock.com	4%	0%

Water Resource Usage and Activities in Last Calendar Year		
	MAMSWaP 2014	**MAMSWaP 2013**
Motorized boating	30%	24%
Non-motorized boating or sailing	35%	25%
Fishing	32%	26%
Hunting	9%	9%
Swimming	35%	23%
Ice-skating or winter sports	28%	20%
Walking, jogging, birding, or similar uses	80%	61%
Scenic Appreciation	88%	74%
None of the Above	4%	12%
Type of Residence		
	MAMSWaP 2014	**MAMSWaP 2013**
Single-family house	92%	77%
Duplex	0%	2%
Condominium/Townhouse	3%	7%
Apartment	3%	12%
Mobile home	0%	1%
Other	2%	1%
Member of an Environmental, Conservation, or Watershed Organization		
	MAMSWaP 2014	**MAMSWaP 2013**
Yes	30%	24%
No	70%	76%
Gender		
	MAMSWaP 2014	**MAMSWaP 2013**
Male	54%	65%
Female	46%	35%
Age		
	MAMSWaP 2014	**MAMSWaP 2013**
18-24	0%	2%
25-34	10%	12%
35-44	15%	11%
45-54	21%	18%
55-64	30%	21%
65+	24%	37%

Highest Level of Education		
	MAMSWaP 2014	**MAMSWaP 2013**
Less than high school	0%	0%
High school diploma	2%	12%
Some college/tech	10%	15%
Tech college graduate	4%	6%
Bachelor's degree	48%	29%
Grad or professional degree	36%	37%
Employment Status		
	MAMSWaP 2014	**MAMSWaP 2013**
Self-Employed	13%	9%
Employed Full-Time	49%	44%
Employed Part-Time	8%	6%
Homemaker	2%	1%
Unemployed	0%	1%
Retired	25%	36%
Other	3%	3%
Household Income Level		
	MAMSWaP 2014	**MAMSWaP 2013**
Less than $25,000	2%	12%
$25,000-34,999	3%	7%
$35,000-49,999	7%	17%
$50,000-74,999	21%	22%
$75,000-99,999	25%	15%
$100,000+	42%	28%

Appendix H – MAMSWaP 2014 Online Survey Written Comments

Q4. When it rains or when snow melts on your property, where do you think the resulting stormwater goes? 'Other' responses

- Retention pond/basin (5x)
- Lake(s) (2x)
- Absorbed into property soils, some into storm drain
- Aquifer
- Black Earth Creek
- Black Earth Watershed
- Closed depression on adjacent lot
- Downhill
- Front into storm drain, back into prairie
- I'm sure it eventually ends up in a pond or marsh.
- Infiltration
- Into Lake Monona
- Into my water table
- Into the ground
- Into the lakes and rivers
- Lakes, rivers, streams, groundwater
- Local stream, rivers and lakes
- Most of it soaks in, as we don't have much paved or roofed area.
- Perks into my property and property adjoining
- Rain barrels, rain garden
- Retention pond; we live on well & septic
- River
- Some absorbs into my yard and lots runs into yards downhill from mine and anything that does not absorbs then runs into storm drains.
- Some directly into the ground, some into a ditch, which would end up in Black Earth Cr.
- Some is absorbed into ground.
- Some retained on property. The remainder flows through the storm water system and drains into Lake Mendota
- Subsoil
- Sugar river eventually
- The storm sewer empties into the woods on my property
- To the nearest water body
- Ultimately to the lakes
- Upper Sugar River
- We are on 15 acres
- Wingra Creek

Q5. Where does stormwater runoff go once it leaves your neighborhood? 'Other' responses

- Ground
- I live on well & septic, so to a degree some of the water does not leave my property
- Into a pond in our neighborhood
- Into the ground

- Lake
- Live in the country, goes to fields, woods, etc.
- Most goes into local soils
- Storm sewer, bio-filtration basin, prairie, Yahara River
- Upper Sugar River

Q10. Of the practices listed in Question 9 that are applicable to your situation but you are not currently doing, what things prevent you from doing them? 273 responses

b. Have your oil changed at an automotive service center 4 *comments*

- Change own oil and dispose of properly.
- I find it much easier and time saving to change oil in my vehicles at home. I always take the used oil and oil filters to a collection point for recycling. I don't see the point of taking my vehicle to a service center if I treat the waste the same as a service center.
- I have changed my own oil, serviced and washed my own vehicles all my life. I am not about to pay someone else to do it.
- Prefer to do myself. I recycle oil and filters at approved sites.

c. Conduct soil tests to determine fertilizer application rates for your lawn *16 comments*

- Already use items sparingly.
- Cost
- Do not have a yard.
- Do not know how to get this done.
- Don't know how and am unlikely to apply fertilizer anyway
- Don't know what kind of soil test
- I don't know what is meant, but if it refers to a test to determine what nutrients/fertilizer we should add to our lawn we would be willing.
- I don't use fertilizer so did not think I needed to test soil.
- I will not pay for someone to analyze my lawn, nor do I want my tax money used to do it. People have to be responsible for their own actions and not rely upon someone else to do it for them. If someone is polluting, they should pay and the rest of us left alone.
- Need more info on the soil testing
- Never got around to doing tests.
- Not sure how to do this
- Only fertilize in spring and fall, soil tests not necessary.
- Stopped using fertilizer/weed
- Time.
- Too technical.

d. Apply chemical fertilizers only once or twice per year *2 comments*

- I deplore using chemicals, period, however I do use them every couple of years after digging weeds out no longer work or vinegar no longer work, allowing the thistles to take over. I have converted the backyard perimeter to a dog run by mulching with wood chips, which also traps a lot of rainwater and helps limit runoff. I rarely fertilize or water my lawn.
- We just moved into a new house and are trying to get the lawn under control.

e. Apply weed-killers only once or twice a year *3 comments*

- I have been using herbicide to control buckthorn and honeysuckle in the wooded areas of my 1-acre lot. I am not aware of an alternative for controlling those invasives that works.
- I have serious problems with invasive weeds from a neighbor's yard. Once a year I strategically use round up to control this.

- We use spot treatment on weeds.

f. Stop using chemical fertilizers and weed-killers completely *39 comments*

- A husband that is too particular about our yard.
- Controlling weeds just manually does not work. You must use chemical applications to eradicate.
- Cost/effectiveness of other options
- Don't like weeds.
- Don't use fertilizer or weed killer on my "lawn". It's already dead from the neighbor's tree. Don't believe in killing my grass with fertilizer.
- Effectiveness; Knowledge of alternatives
- For fertilizer - need some replenishment above and beyond compost for garden and lawn. For weed killers - Canada thistle would rule the yard if not available.
- Have a new lawn, trying to get it established
- How do I control garlic mustard?
- I do not use chemical fertilizer, herbicide or pesticide and never will. I maintain all runoff on my property.
- I do not use fertilizer or chemicals on my lawn.
- I don't us chemical anything and don't use soil tests.
- I don't want my grass to die
- I fertilize carefully and only use herbicides sparingly and only when weather conditions are right. My lawn is acidic, shaded and has a lot of clay so not fertilizing at all wouldn't work. We have nature areas, large natural gardens so lawn is 1/2 of what it could be.
- I spot apply herbicide once a year - too much work to pull or eliminate weeds
- I use natural fertilizers--composted manure--not chemical fertilizers. I do use weed killers for spot applications, but not broadcast applications.
- I use weed killers to prepare areas for new, mostly native plantings, and for invasive weed control around the perimeter of our yard.
- I was informed by a lawn expert that the Round Up I spray on individual weeks only has a short active life, after which it becomes inert. This is the reason I am comfortable using it. If this is not correct, I would like to know.
- I would be willing to do this, spouse is not.
- I wouldn't have a lawn if I stopped using weed killer and fertilizer.
- Interferes with flower and vegetable gardens
- Lawn would die
- My lawn would not do well without them
- Need an alternative method for fertilizing and weed killing.
- Need some method to control weeds. Can't mechanically eliminate.
- Need to keep weeds from invading lawn
- Need to kill invasive species in prairie we are restoring.
- Need weed killer selectively every several years.
- Only use spot weed killers. Lawn would be overrun with dandelions otherwise.
- Stopped using fertilizer/weed killer
- Town requires us to battle "creeping Charlie", I know of no method that might work other than weed killer
- Trying to use "natural fertilizers" for the most part
- Use very limited, carefully and feel benefit>cost
- We apply every 2 to 4 years, we don't mind some weeds. Half my yard is prairie.
- Weed killers are needed to control noxious weeks and manage the yard.

- Weeds will get out of control, especially mustard. They will kill my lawn.
- What could be used instead of a chemical fertilizer that could be just as good?
- While I do not need a weed-free lawn, I will continue to use weed killers on problems areas in the lawn to keep the weeds from killing the grass.
- Wife

g. Use a fertilizer with no or limited amounts of phosphorus *1 comment*

- Need to discuss with lawn service

h. Stop using salt to melt ice at your residence *49 comments*

- Already use a mix of sand/salt
- City mandates that sidewalk be completely clear, so sometimes I have to salt.
- Don't use very often.
- Don't want ice
- During the winter months, my driveway is usually a sheet of ice. I have to use some sort of method to get melt the ice.
- For salt - liability issues with not keeping sidewalk/driveway reasonably safe.
- I already use mostly non-sodium chloride salts to melt the ice on the public walks. However if I don't use some salt, the resulting liability suit would probably bankrupt me.
- I am not willing to risk injury to myself, or family. I use as little salt as possible to prevent someone from falling.
- I have a steep grade for a drive and I just fell this am because of ice
- I live in a condo association and have limited or no control over how the lawn management and snow removal company care for the property. Would really love to see some regulation and more education of that industry to aid in environmentally sound practices. Even the city of Madison workers use salt on the sidewalks improperly and in excess.
- I only do the sidewalk, because I have to.
- I rarely use ice melt but need it occasionally on my entry sidewalk; any alternatives would need to be something that keeps well in the shed.
- I really get scared of someone slipping on the ice in our drive and walk.
- I salt on an accessibility ramp and drive when it just builds up too much.
- I try to use salt minimally, but I have a hilly driveway and it is needed sometimes.
- Ice is a hazard if it isn't taken care of.
- Ice is seriously dangerous, and I do not know of any other ways to prevent it, besides what I do already -- try to shovel right away and use salt strategically. There are people in my neighborhood who use salt instead of shoveling.
- Ice melters are a safety issue and I will not stop using them. I have "Rainhandlers" on my home to distribute water from the roof back over my lawn. No downspouts. One side effect of this is dripping of melting snow from the roof onto the driveway and front walk.
- Ice-melter: We use a minimum, but sometimes the ice is just too dangerous to treat with sand only.
- Is there an alternative I can use to keep ice away?
- Live in duplex & we are responsible to assure our tenants don't slip on ice
- Madison city law requires clear sidewalks, and with possible litigation from someone falling on ice salt will be used. Major user is the city itself, look there to lower salinity levels in the lakes.
- Mostly use City of Madison provided sand salt mix, but some problem areas require salt, which I only use sparingly.
- Need a good option to salt. Already use 'safer' salt that doesn't kill lawns.
- Need a safe practice to get ice off sidewalk. Falling is a worse option now than using small amount of ice melt.

- Need an alternative and practical product or method to remove ice from driveway.
- Need to keep ice off sloped driveway (fell twice this winter).
- Need to learn about alternative products
- Need to put salt on iced over driveway to keep people from slipping and injuring themselves.
- Not sure what else to use on the ice and don't want to get sued when someone slips on ice.
- Our driveway has an extreme grade and would be unusable in the winter without the use of salt.
- Rarely do except when our walkway or driveway is a big hazard, I have no other material available but if I had access to easily transportable free sand, I would change my habit. Currently I do not have a free source nor the proper vehicle to get bulk sand at an affordable rate.
- Required my city ordinance to remove snow and ice from sidewalks. After freezing rain I lay salt to assist in breaking up the ice.
- Safety factors, unaware of other options
- Safety issues with not using salt. Timing of snows many times prevents shoveling from occurring, especially for small snowfall amounts.
- Salt on quite steep driveway. I use less harmful mg salt.
- Salt: family pressure for "safety". Fitchburg should make sand available free to homeowners for use in lieu of salt.
- Sparingly use, but have occasions where ice conditions have to be addressed.
- Steep driveway
- Stop using salt: I intend to use up the salt I have, and I can substitute wood ashes, but I don't know if they are worse for the environment. Ashes are definitely much "dirtier" as far as tracking into the house.
- Unsafe driveway ice.
- Using salt on driveway ... no two winters are the same in Wisconsin.
- Using sand allows ice to build over areas already sanded; lumpy and mounded areas on walks are stumbling hazards - walks and drive are cleared of snow and as much ice that can be cleared with a shovel then only areas of ice are salted---if a thin overall icing occurs which will probably melt with incoming warmer temps, sand is put down for safer foot traffic.
- We do use salt on our steps and walkway to the garage.
- We live on a long steep driveway and occasionally need sand and salt or fire trucks or emergency vehicles could not get to the house.
- We use salt to keep the public sidewalk clear in winter.
- Will stop using salt when conditions allow it. I rarely if ever use salt, but need to do it periodically when things are very bad. (Perhaps once a year.)
- Worried about the liability and concern of someone falling and hurting themselves on slick sidewalk
- Would need to know what the alternative is for melting ice, do not want to risk falls by family & visitors.

i. Compost leaves and grass clippings in your yard *14 comments*

- Although I compost as much as possible in my yard, with a half-acre of mostly trees I take about 50 bags of leaves to the Town compost each year. We're in our early sixties and lifting those bags gets harder; additionally, if I didn't have a van this would be a lot of driving! It would be great if the Town added one or two spring and fall leaf pickups (not grass--no one has an excuse for putting grass clippings street side!)
- Don't want mess of composting -attracting vermin, insects, etc.
- I believe grass clippings and leaves should be cut up and left on the lawn "mulched".
- I take leaves and clippings to the Madison yard waste site.
- Increased effort

- Mulching grass clippings ... people need an incentive or education to leave grass clipping on the lawn.
- Need to purchase a compost bin at the spring sale
- No need to compost yard materials...use mulching lawn mower and leave on lawn.
- Not practical on a 10,000 sq. ft. lot, unsightly, odor, etc. Use local compost site.
- Not sure where to put a compost pile that would not offend neighbors
- Our lawn is so small there is no place to compost them. I do have a kitchen composter but we really have a very, very small lawn.
- Too many leaves, like in the fall kill the grass. I already compost clippings
- Volume of leaves in my yard makes on-site composting impractical. Interested in learning about other methods to do this with yard and food waste, especially without attracting mosquitos and flies.
- We leave grass clippings on lawn, but our leaves are diseased & were advised by arborist to rake them up & not mulch to try to alleviate problem in diseased trees

j. Compost leaves and grass clipping through a community program *13 comments*

- Community effort for local mulching ... local mulching should mean in a neighborhood, not hauling grass clippings and leaves to a recycle center.
- Compost myself. Don't want to transport to county site
- Don't know about one.
- Don't think our diseased leave should be mulched & spread anywhere.
- Easier to do on my own
- I already mulch and use any clippings during the summer to mulch my garden.
- I compost fruits/veggies but I am not responsible for lawn care.
- I either mulch with grass and leaves or leave them on the lawn when I mow.
- No such program available in my neighborhood. (Unless I haul it to a site myself, which is not practical on more than an occasional basis).
- Not sure if my community has one
- Personal efforts to recycle leaves and grass clippings negate need to take to community-based solution.
- Pick up service would help
- Town has a way of disposing of these materials.

k. Use a mulching lawnmower *8 comments*

- Don't plan to buy a new mower.
- I have a standard push lawn mower and leave clippings on lawn. I would consider a mulching lawn mower if I was convinced it was needed.
- I use the clippings to mulch my garden, so I want them
- Next lawnmower
- Too expensive (lawnmower-wise). I tried a mulching blade but it didn't work
- Too much property to mow.
- Too small of a yard.
- Use a mulching mower.

l. Direct rain downspouts to your lawn rather than your driveway *7 comments*

- Cost! For example, we have a large asphalt driveway and water runs straight to the ditch or street. I'd like a permeable driveway but can't afford it. Right now I can't even afford to replace my crumbling asphalt.
- Downspouts on the side of the house are on an alley.

- Having downspouts dump water into our lawn caused flooding in our basement, primarily because our house is on a hill.
- I have one down spout that is in an awkward location and it currently directs the rain to my driveway. I am looking into how I can fix it.
- I need to have my downspouts altered, because they empty onto driveway. I intend to modify them later this year.
- Rain from all downspouts already goes into low areas of my yard.
- We have no downspouts or gutters. Our road has no curb or storm sewers. Our property slopes down from the road so all rain water and snow melt stay on our property or drains onto farm fields several hundred feet away.

m. Install a rain barrel or cistern to collect rainwater from your downspouts *40 comments*

- Cost (2x)
- Barrels/systems are very expensive.
- Because of the configuration of my house (on a hill), it is difficult to install a rain barrel. I planted a rain garden several years ago.
- Cons to this solution include mosquitos, algae, etc.
- Don't really have a need for one now, but it's a good idea.
- Don't see need. Just goes to dirt & stays on property. Don't want bulky, stagnant water container
- Don't want mosquitoes to breed in a rain barrel, don't have garden or other use for collected rainwater
- For cistern/rain barrel - emptying nuisance, mosquito habitat, cost.
- Have a rain barrel and direct down spouts onto lawn.
- Haven't seen the need yet.
- I am willing to do one or both (barrel and/or rain garden) but other home projects have been a higher priority.
- I do not have the money to get a rain barrel, but I would use one if provided with one.
- I don't know how to start
- I feel rainwater from my property is already well treated and don't need the water outside.
- I have a rain barrel installed but it fills up very quickly.
- I live on an acre lot in the county. Why in the world would I install a cistern like we had on the farm?
- I need to hook up my barrel.
- I would do this if my community board allows it - the committee would need to approve it
- I would do this if the rain barrels were more affordable. I switched a downspout this year so no water drains on my driveway.
- I would do with the right cost incentive.
- I would like to install a rain barrel to use for watering my plants.
- Install a rain barrel. Too labor intensive.
- My husband thinks the rain barrels will attract mosquitoes.
- Need money, technical advice. Would like to find a rain barrel solution that also minimizes or eliminates gutter maintenance.
- Need to make the adjustments to my downspouts and purchase a rain barrel. Even a single (good) rain barrel runs about $100.
- No place to put these items.
- No room
- Not sure where I would put a rain barrel
- Our rain gutter water filters through 1 1/2 acres before reaching ditch.

- Rain barrel ... my landscaping diverts all water away from near the house ... no flat spot for a barrel.
- Rain barrel ended up causing water problems in drainage
- Rain barrel set-up is expensive and hard to do by myself; need subsidies, delivery, and installation help.
- Rain barrel: Not sure how this helps when we are on a well. Also, not sure about runoff from roof being good for the garden.
- Rain barrels are ugly
- Rain barrels will need something to eliminate mosquitos.
- Time and money
- Too much cost/effort for the amount of water saved. I already direct my downspout to the grass
- Water from spouts goes onto lawn, which usually needs it. Cuts down on watering lawn from well water.
- We had a rain barrel at the old house but didn't bring it with us. Working on that.
- We have natural areas so do very little 'watering'.
- Would do it myself but have to buy the supplies and do it, don't know how

n. Install a "rain garden" to intercept rainwater from your downspouts *27 comments*

- A rain garden in the next few years.
- Don't know that I really have the space for a full rain garden where most downspouts (that are not connected to rain barrels) empty.
- Don't really know what a rain garden is
- I am intimidated by making my own rain garden because my home is on a hill, and I am not sure where to place one that would be effective, and it is complicated by my very small yard with awkwardly placed underground utilities.
- I don't have room.
- I don't have much room in my yard.
- I would like to make a rain garden but don't really know how to get started on that. I would need someone to give me advice on the best place to put it, how deep etc.
- Installing a rain garden: I know how much work it takes and also would have to decide exactly where in my small yard.
- Just need more info on design, etc.
- Lawn does a good job of absorbing rain water
- Need a plan for a rain garden
- Need further instruction on installing a rain garden.
- Need info on how to do this, get agreement from neighbor.
- Need money, technical advice. Not sure how practical permanent landscaping or maintenance is with a large, digging dog who has the run of the very shady back yard.
- Need to learn how
- Not very adept at landscaping, nor is it in my home budget.
- Our yard may be a little steep to install a rain garden, but I'm not sure.
- Possibly but very low priority. Don't have a problem with runoff
- Primarily, I don't know enough about how to make a rain garden. Supposing that I learned enough, then the barrier to implementing it would be the cost of plants and labor (or my own time).
- Sounds expensive to design and plant a rain garden
- Space issues (tiny yard)
- Water goes into lawn. Water runs through ditch as we are downhill.
- We do not have downspouts on the house that reach the ground (we are renters, the spouts end about 1 foot from the roof and just rain down) but the water hits the lawn area close to the house.

We currently mow only a small area around our home to reduce our encounters with ticks, and have left much of the area to grow on its own. We have begun seeding with free seed packets from the TNC to encourage more prairie-style plants which I believe are better/more akin to rain garden plants than the grass. We are on a hilltop surrounded by agriculture; gravel driveway etc., the runoff likely goes into a little intermittent creek that our gravel driveway crosses.

- We have discussed this with a landscaper, but have not done it yet. Hope to install in the next year or two.
- We need "how-to" information specific to our property for rain garden.
- With my current landscaping and swales, I think I would need professional services to determine and create appropriate locations for rain gardens. I wish that the state or county had rebates for improvements that would positively affect our water quality.
- Would install a rain garden need to know how etc., need instructions

o. Keep street gutters in front of your residence clear of grass clippings and leaves 8 *comments*

- Don't have gutters or storm sewer by my house.
- Haven't thought about it before
- I am not in the Madison lakes watershed and any runoff from my home would have to go across relatively level topography to get to any ditch or stream
- I live in a rural cross section with no storm sewer.
- I put leaves on the terraces. Not sure if that is enough?
- No gutters only grass surfaces.
- Too lazy
- We are on highway ditches.

p. Wash your car on your lawn *18 comments*

- Can't wash my car on the lawn because landscaping or curb prevents access to the lawn.
- Damage to lawn.
- Do not want to rut or destroy lawn.
- Don't wash car on lawn because don't want to compact the soil by driving on it.
- Driveway water does drain to lawn, not street.
- Haven't thought about it before
- I don't have room in my yard to wash my vehicles.
- I don't wash my car. I let the rain clean it.
- I usually wash my car at the car wash but can wash it on my grass... have big trees in front so would have to do it in the back yard and cannot get my car in the back yard.
- It's impossible to park on our lawn, but we did install a more porous driveway.
- Kind of a hassle compared to how much soap/water I use (not much). The amount of dirt is negligible and would probably wash off my car anyway. I probably wash twice a year (to wash the salt in the spring and before waxing in the fall). I'm not too concerned about having a sparkly car the rest of the year, unless it's really dirty and needs to be rinsed.
- No convenient lawn area to use.
- Wash car at car wash or on driveway infrequently in summer. Water runs down driveway into side of my lawn or evaporates. Doesn't leave neighborhood.
- Wash car on lawn is not possible, but I do have a gravel driveway, and used only one bucket of water when washing the car. Very occasionally I wash my car at a car wash where much more water is used.
- Wash car on lawn? Can't say I've considered driving or my lawn, or seen anyone washing vehicles on their lawn.
- We have a gravel driveway and rarely wash our vehicles at home, but if we do, the water mostly soaks into the driveway or runs into the wooded area.

- Wife does not want me to drive our cars on our lawn!
- Won't wash the car on the lawn because our lawn is fragile and often sparse because we don't use any chemicals on it, if we drove on it and washed a car, it would be bare dirt and cause more problems through erosion.

q. Wash your car at a car wash *2 comments*

- Not aware there is an issue.
- Use car washes.

r. Clean up and dispose of pet waste *6 comments*

- Just need to get better at the habit.
- Need to get know how to properly dispose of it once picked up.
- Not sure what to do with pet waste. I cleaned up the dog poop and put it in a bucket, then dumped it in a wooded area of my yard and covered it with leaves and pine needles.
- Pets.
- The stench of pet waste in our garbage would be unacceptable and I thought disposing of waste in this way was not really allowed. It currently is disposed of in a farm field.
- Time

Other Comments *16 comments*

- Anything we're not currently doing doesn't need to be done on our property, due to the way we manage our twelve acres of restored oak woodlands. We are very conscious about the native species, some of which are endangered, on our land, and keep out non-native and invasive plant life. We are both a certified national wildlife habitat and a conservation site.
- Cost
- I don't own any property
- I live in a condo and the association has a lawn service that applies fertilizer and weed killer a couple of times a year. They leave the grass clippings on the yard and mulch the leaves in the fall. They apply a lot of salt on the street and our driveways in the winter because of the fear of a lawsuit if someone falls. I do not need the amount of salt they put on my driveway and porch area but I don't have much of a say in it. I have a garden area and do not apply any pesticides to my area and only use a liquid fertilizer on my flowers.
- I own a condo and am restricted by that. I do advocate for decreased pesticides, mulching, rain gardens, etc., but I am one voice of many. I think if there was some kind of write off/ or tax incentive our Association may be will to adopt more of these practices. We would then just need our condo management company to actually follow through.
- I practice as many green principles as possible but not 100%.
- Just need to be more proactive; didn't know about some activities that might cause problems
- Live in a condo
- Money is always a concern, along with the ability of 2 physically handicapped people to perform these tasks. Also, we are looking to move to a home/condo where we would have substantially less responsibilities for these tasks.
- More information about how to do these things.
- Need more information.
- Not a priority
- Not enough info on the problem and its application to my situation, and that of my community. I know the info is out there, but I haven't actively sought it out. I will now because of this survey. (We are on septic and well.)
- Not necessary - not near a lake or stream.
- Personal time and effort
- Time and money

Q11. Please indicate how effective the following efforts can be to improve the water quality of lakes, streams and/or rivers in your community.

- Encouraging pet owners to pick up waste/Enforce pet owners to collect waste (2x)
- City grass clipping
- Controlling erosion
- Education/regulation
- Enforce buffers on ag land
- Enforce no manure on frozen fields
- Environmental education and outreach
- Fertilizer limits
- Go after Industrial Ag. farmers
- Improve agricultural standards; restrict winter spreading of manure, and increase enforcement of agricultural standards.
- In item h. (reducing salt usage for melting ice), I assume the reduced salt for melting ice is directed to the City. I suspect residential use is comparatively negligible. Of course there is a safety issue with municipal salt on streets.
- Increase efforts from businesses and farm properties.
- Increasing permeable pavements
- Live in a rural area of the county, no storm drains, town road just crowned
- Love this idea! (Stenciled messages on streets/drains)
- Minimizing impervious surface area
- Not destroying natural wetlands
- People need to stop using fertilizer on their yards.
- Public education: community newsletters and actual demonstrations at community events.
- Recharge recycled effluent from Nine Springs treatment plant to increase spring flow and stream base flow
- Restrict manure spreading, ban lawn fertilization, restrict or heavily tax new impervious surface
- Rural areas are plagued by ignorance, especially willful ignorance and a mentality that suits their own purposes. Education would probably help but I highly doubt it. People around me burn plastic and dispose of garbage and other materials improperly, my husband and I cleaned up the farm we are renting of literal wooden barrels of oil (what the hell) and other ancient chemicals left to rot in an old barn, running off to who knows where. The landlord didn't even want to dispose of them properly and asked if we could just dump them in the field. Ignorance and 'who cares', not my problem, are big threats to our water.
- Speakers at neighborhood association meetings
- Special storm water utility tax
- State should own & buffer 50" of every waterway!
- Street sweeping in closer conjunction with lawn debris pick-up. Enforcing no lawn waste placed in the street with a fine.
- Tax fertilizer, chemical applicators and sales of chemicals to support water quality efforts
- Tax sprawl, improve public transit to reduce VMT

Q12. Which of these would you contact if you became aware of a stormwater pollution problem (for example, a large amount of mud flowing into a storm drain)? 'Other' responses

- My Town/Town/Town Office (3x)
- Actually didn't think it was an option

- Contact any of the above; not sure about contacting all of them for one particular problem unless problem is allowed to persist
- Dane County Land Conservation
- Didn't know I should contact someone about that
- Does not apply
- Proper Gov. agency
- Starting with closest first
- The person(s)/organization responsible for the pollution problem
- Town of Middleton

Q13. During the last five years, do you recall having received information regarding stormwater pollution issues and practices from any of these sources? 'Other' responses

- County offices
- Don't recall the source
- Door hangers
- Emails
- Facebook
- I'm on a water-policy panel with a think tank and there are experts on it.
- Love Your Lakes signs
- Municipal gov't meetings
- MyFairLakes mailing
- National newspaper
- Newspaper as a private citizen; public meetings and Internet associated with my job.
- Through my place of work
- Town Engineer
- Upper Sugar River newsletter
- Yard signs
- Yard signs, coasters at a bar

Q15. If you have other things you'd like to say about stormwater runoff/water quality issues, please do so here. 71 responses

Efforts/Practices *17 comments*

- Although not a stormwater issue, the discharge of treated water into the Rock River should end. We pull up millions of gallons of groundwater with wells, and then dump it into a river that moves it all out of our area. Madison area water should be injected to replenish the local aquifer.
- Every year residents are told not to put the raked leaves in the gutter but most of them still do. They will not leave them on their yard. Probably because they think the leaves will kill the grass. If leaf pick up were done more often, they would probably still do it. / When more strip malls and houses are built, there needs to be areas built to collect the run off so it doesn't go to the lakes and streams.
- Every year the city cuts weeds in the lakes. Although an instant improvement, it's time & money spent on no contribution to actually fixing the problems. Seems like a silly waste of $. Development of neighborhood stormwater runoff ponds in existing neighborhoods (if a feasible location can be identified) might be a good idea.
- For persons of exceptionally modest income, these items are important but may be unaffordable, given the current economy. Efforts should be focused to large-scale polluters, with burdened and/or older/handicapped homeowners being encouraged and assisted to make a contribution.

- I am the Utilities Director of our wastewater treatment facility. We place significant efforts on treatment and the point source discharge. We are also piloting with Madison Met on the Adaptive Management Program. I believe more regulation on properties outside of our municipality is warranted.
- I don't think that street sweeping is effective. When I lived on a corner lot in the city of Madison, the street sweepers would come around the corner and all that junk dropped right into the two sewers on that corner.
- I have checked a no. of web sites to study this issue. Much blame is misplaced. Case in point, I watch the City of Madison blow all of their grass clippings into the streets, they allow leaves to pile up on the curb and get washed into the gutters with every rain. I have watched the City track mud from "City' projects for blocks on end. I would be fined for tracking just a small amount for a project as a small contractor. This goes on year after year with no end in sight. If "just" Madison cleaned up their act the results, we would see a huge improvement in our area lakes. City of Madison and Middleton have for years approved and encouraged building in areas that used to be filtering areas for the lakes. {think Sheraton Hotel} They should be leading by example rather than dictating to us.
- I think the amount of salt we use on the roads in winters is absurd. I can see salting intersections and some curves but salting miles and miles of straight highway is crazy. Shortly after I got my license when I was 16 my family moved to Vilas County close to Conover. The roads were plowed in winter but they didn't use salt except for parts of state and US highways. You just learned to drive without it. It can be done. Government has become the enabler of the loss of winter driving skills. Salt not only pollutes our water but damages road surfaces, bridges, and our cars. I say stop this craziness, if you don't know how to drive in the winter take public transportation.
- I would like to see legislation requiring all large parking lots to be more permeable and/or have their storm/melt water go to water the trees in the lot and/or go to catchment basins to filter it into the water table or wetlands. Thanks for doing this survey.
- In addition to some regulation and education, I think the City of Madison should be setting a better example itself, especially with respect to salt usage on city sidewalks and messaging good practices maybe through the media at the beginning of each season reminding residents of best practices.
- In Dane County there are a lot of initiatives to clean up our lakes and streams. But it seems like the community that does not live near the lakes are not engaged in the clean up. So how do we get more people involved? / Also: / Data on how effective manure digesters are--cost versus benefits--in reducing agricultural runoff into area streams / Develop strategies to keep streets free of leaves in the fall / Ideas to engage the community in cleaning up our lakes /
- Municipalities should look at locations in parks or other public places where rain gardens can be constructed; maybe in public/private partnerships--a community building exercise? / Info and/or aid to build/install green roofs on both public and/or private buildings.
- Need better, cheaper options to convert lawn to prairie, and/or incentives for such.
- Reduce the salt used on the streets in the winter. Years ago so much road salt was used in Vermont that it led to the closing of many wells contaminated by the salt laden runoff.
- Solutions need to be put into perspective. Eliminating salt on roads is a good idea but not if roads become treacherous and dangerous to drive on. Solutions need to have a cost/benefit analysis performed.
- Spend money wisely; don’t spend tons money on something that is only going to get a 1% reduction for example.
- Water is precious. Keep up the good work.

Agriculture *12 comments*

- A lot of pressure is put on municipalities to treat stormwater and clean up waterways, but I think that agriculture is the main culprit in nutrient pollution and sedimentation.
- Agricultural runoff should be regulated, not just purely done on a voluntary basis. Highly erodible fields should be required to mitigate runoff at the field level.
- Also factory farms need to have better and safe ways to keep the waste from entering the streams and lakes. We can't let the government allow more protections to be banned or weakened.
- Carp are the major problem
- I believe farm runoff is a bigger issue especially on stream and rivers
- I do believe that the data regarding water runoff has been manipulated to find excessive fault with farmers. The expectation of the researchers is that mankind is totally at fault and unless drastic and expensive measures are not taken immediately it is worrisome. Most of the questions on this survey, for example are slanted toward runoff that is supposedly happening. In my rural yard the great majority of heavy rains go into the soils. If I stand at the ditches and corners of the yard during snow melt and heavy rain, not very much goes downslope in the ditches. Certainly there are point source areas of soil erosion in farm fields and at construction sites. There are definite point areas where salt gets into lakes, and phosphorus is abused in yards, but you cannot paint with a broad brush. Problem is, once some soils, phosphorus, salt, etc., get into the lakes they are hard to remove.
- I thought there was a law that didn't allow manure to be spread on frozen fields, yet all over southern Wisconsin you see fresh manure being spread on the frozen snow covered fields. Why?
- Industrial Ag. is the biggest factor in water pollution in this water shed. Urbanization is number two.
- My experience is that the major source of nutrient in the streams is from stream bank erosion bringing in a lot of sediment. Past ag practices have compounded ag runoff.
- Our community is directly impacted by Madison's inaction when it comes to streets maintenance, as well as by all of the farmers that appear to take little to no action to prevent erosion or fertilizer runoff. Farms need to reduce their chemical dependence, as do the cities that over salt their roads throughout every winter (the beltline should not be white when it's dry!).
- Quite blaming all lake pollution on the farmers. They practice erosion control more than anyone else; that is the smaller farms. The big cattle lots can cause lots of polluting. Need to control the size of these thousand plus cow dairy farms.
- We've done a pretty good job addressing the urban runoff issues. We really need to start working on the agricultural issues (cropping and manure) that seems to overwhelm the urban runoff problems and are so voluntary nothing gets done. This seems especially true if the Ag practices cut into farm profits (at the expense of the environment).

Lakes/Rivers/Steams/Creeks *11 comments*

- Am very happy someone is looking at this... please save our lakes, streams and rivers... the new gold is blue gold "fresh water" very valuable resource, need to take care of it, thanks!
- Did not swim/boat or fish. River and lake are as my family says, "gross". Green muck - algae. River is so low at times; canoeing is difficult (water management?). Never used to be this way.
- Glad to know that there are more initiatives to help clean up our lakes/rivers. I love to swim, canoe, kayak, etc. and living between two lakes provides ample opportunity to do what I love, but these resources are not as well kept as they should be.
- I am concerned since I live very close to the lakes and see so much pollution and bad water. I feel bad that I have to take my kids to the Y or out of county to a beach when I live 3 blocks from Tenney Park.
- I am part of a very active local scuba diving community, and we participate in garbage cleanup in the lakes, and along Mendota/Monona shoreline. It is shocking and sad how bad the visibility is in

our lakes, year after year. The amount of trash at the bottom of the lake, particularly along Monona Terrace is disgusting. Please add more garbage receptacles and stencil "Don't litter" messages along that barrier wall to try to reduce the amount of beverage containers, etc. that get thrown directly into the water there. Thanks!

- Improving the Yahara River chain of lakes would be a great economic benefit to Dane County that would more than pay back the cost over time.
- Madison area lakes are gross in the warm summer months. Yet in winter, they are crystal clear. While I applaud efforts to reduce run-off at the source, you can't stop it completely. Lake Mendota is one of the most studied bodies of water in the U.S. Why can't the University develop a natural enzyme that neutralizes the impact of nitrates and phosphorus?
- Madison lakes are historically disgusting (since the 70's) but have improved somewhat over the years.
- Nowhere in Wisconsin do I go swimming or allow my dogs in the water, unless it is a pool. My dogs have suffered from stubborn skin infections after going into rivers, lakes, and streams-and I did at one time allow them in as many bodies of water as I could introduce them to: they are fine hunting dogs. If I keep them out of these waters I have no problems keeping my dogs' skin healthy. They do not have allergies. I am concerned for the quality and amount of our underground water and ultimately our drinking water. / I think long and hard about eating anything that is harvested out of our waters.
- Pheasant Branch Creek is near us and still shows signs of heavy pollution. Even with the manure digester the creek in summer was awful. Increasingly the watershed is under industrial development with large parking lots. Are regulations in place to control run-off from development. I see little evidence of rain gardens in the business park south of Airport Rd.
- The county should push more effort to clean up the Madison lakes. They should be a huge recreational draw. The quality goes down every year (except during the drought which is a pretty good indicator of the problem source). I think smaller streams are in better shape than the lakes as a whole. We in this part of the world also have to realize we are in the Mississippi basin and our pollution ends up in the gulf.

Information/Education *10 comments*

- Continue spreading the word about the little things everyone can do to make big differences. That is what happened in our household. Angle a downspout=easy. Use a sand and salt mixture instead of salt alone=easy. Keep leaves/grass off the street in front of you home=easy. Etc.
- Education is critical and should be stepped up. My neighbors routinely discard pulled weeds or leave grass clippings in the gutter. Some neighbors sweep up the sand/grit applied to roads during the winter and tracked onto their driveway or into their garage and dump the resulting pile into the storm sewer. Many people continue to over-fertilize their lawns not realizing the problems it causes.
- I appreciate the continuing efforts to educate the public about these issues.
- I think Dane County has done a good job of making residents aware of good practices regarding storm water runoff, which in turn improves the quality of water in our lakes and streams.
- I would like to see the perception that people can make a difference improve.
- Local municipalities do not utilize resources and do not have knowledgeable staff in local government that knows how to educate the public.
- Public education is needed as to exactly where the waters run from each property. It should be included in the property tax bills every year or when property changes hands. Developers on our Town of Middleton Board do not seem to be concerned with run off and with threats to our wells.
- Suggestions for actions for people who live in the country are needed

- Thanks for what you're doing. I believe public education might help but there are a lot of willfully ignorant people out there who won't stop what they're doing because they just don't care.
- Unfair to ask if we should be spending more or less on these issues unless we are VERY well informed of historical and current situation, which I suspect few people, including myself, are. Spending more not always the answer--sometimes it's spending more wisely.

Overall Issue of Water Quality *5 comments*

- Good luck -- such an important issue!
- I am an alder and member of the Fitchburg Resource Conservation Commission, so I'm very well versed on these issues.
- I would strongly advocate for an annual, citywide neighborhood association leader conference (the Mayor held one in 2012). Reaching the neighborhood association leaders is key for information distribution and promotion. These issues could be addressed in a session or two that leaders could attend. Putting faces to the names we see on City staff lists and newsletters really helps with getting everyone to take responsibility for this issue.
- It is definitely an effort worth pursuing; our water ways are definitely a resource I use and enjoy and it would be very sad if their condition deteriorated
- This is a serious issue that will directly impact quality of life in our community and state that must be addressed.

Fees/Taxes *3 comments*

- No storm water utility is needed in the Town of Middleton. Like most other efforts, this is simply designed to be a mechanism to collect fees (taxes) in this case, by the Town of Middleton.
- Please don't increase the water taxes each year, this is a burden, find another way or wait until you have saved enough taxpayer money
- Years ago, Madison and Dane County initiated a boat docking fee/permit requirement at all public boat landings. This money was to be used to improve dock and water quality. I have yet to see any real improvements other than the fees being raised every year. Where does this money go and how is it used?? The lakes are still filthy and weed choked and if you think otherwise, you're not a fisherman. A lot of the slime and surface scum is created by pleasure boats and Jet Ski's running at high speed along the shoreline or through weed beds. The only time I've seen halfway decent water quality is when the water is high and the shoreline is designated as a slow no wake zone. The day the ban is lifted, it's back to the same old practices and the slime and scum return. How about doing something real productive and make a permanent no wake zone for shorelines and weed beds?? Anyone that's been on the lakes at all, know where the weed beds are, and if not, get a lake map. Unless you're drunk, you should be able to see where the shoreline is.

Stormwater Runoff *3 comments*

- If the city of Madison is allowed to continue to pave over the greater west side I see nothing but more stormwater taking a shortcut to the lakes
- Madison has hired PPS to work on the Public Market project, but PPS does not take stormwater runoff into consideration in its work. Madison is also hugely car-centric and sprawling, which is environmentally unsustainable: tax the sprawl at the gas pump and parking meter, ban lawn fertilizers/pesticides, etc.
- Stormwater runoff only appears to be a problem in my neighborhood when we have atypical amounts of rainfall, such as 4 inches in one storm.

DNR and WisDOT *2 comments*

- Right now I am very concerned about all the sediment and pollution that is flowing into Dunn's Marsh (Madison and Fitchburg) from the Verona Road Project. Our Dunn's Marsh Neighborhood had requested that WisDOT do before-, during-, and after-the-project water quality monitoring, but since this wasn't required by law, WisDOT refused to do any of this. There's been an extreme

amount of mud on the frontage roads from stockpiling of dirt in the open spaces around the frontage roads of Verona Road and the Beltline. Plastic fence barriers are often breached by the trucks hauling dirt to huge piles there and there seems to be no attempt to prevent the mud on the frontage roads or to clean it up. Almost all of these areas are directed to Dunn's Marsh, and only one small area of the neighborhood watershed has storm sewers that direct storm water to a settling pond before it goes into Dunn's Marsh. In my opinion, we need better laws for highway construction projects and more monitoring by the state and local authorities to solve this problem.

- The neighboring farmland drains down our gully, then into Black Earth Creek. Last spring's run off carried huge amounts of fertilized soil, much of which was deposited in our gully to eventually be washed down into the creek. We called the DNR who came out to look at it. They said previously they could, but presently could not do anything about it under current regulations.

Flooding *1 comment*

- This is a serious issue for our neighborhood. We have spent thousands of dollars trying to work on this issue on our property, and have experienced severe losses due to flooding.

Industry *1 comment*

- I do what I can to reduce the amount of chemicals getting into our lakes, rivers and streams - I would not want to spend more $'s on a "government" program because I don't feel it would work until the general populous is educated enough to stop worrying about how green and weed free their lawn is and get a little more concerned about how the chemicals they are dropping on the lawn is effecting the drinking water as well as the lakes, rivers, and streams. The lawn care companies are more concerned about a quick dollar than the effect of the chemicals they are spraying/dropping on the lawns to keep them green.

Wildlife Habitat *1 comment*

- Water quality is an important part of surface water protection, but it is not the only goal. Wildlife habitat (especially for amphibians, invertebrates, birds and small mammals), ecological services, aesthetic and recreational considerations should also be given greater weight in public and private decision-making.

Miscellaneous *5 comments*

- Have to be cost effective and supported by science; "wacko" environmentalists seem to sway the debate and always want the sky
- I would love to find out salt tolerant plants for the curb of my house. Very little information out there.
- Live in un-sewered area. Water just goes into ground for the most part. Well water tests fine, so apparently what little pollution there is doesn't reach the well.
- Who should I contact if there's a problem?? /
- You need a choice of N/A for some of your questions.

Q16. What is your zip code?

53066		*53575*		*53711*	*16x*
53528	*5x*	*53589*	*10x*	*53713*	*14x*
53531		*53590*	*2x*	*53714*	*4x*
53532	*6x*	*53593*	*73x*	*53715*	
53534		*53597*	*2x*	*53716*	*7x*
53558		*53598*		*53718*	
53560		*53703*	*4x*	*53719*	*8x*
53562	*61x*	*53704*	*18x*	*53726*	
53572	*2x*	*53705*	*5x*	*53960*	

Q17. Which of the following best describes your current residence? 'Other' responses

- Farmland, no cattle. Single-family house.
- Single family-rural
- Small farm

Q22. Your current employment status. 'Other' responses

- Disabled (2x)
- Business Owner
- Laid off from my science research job
- Retired except for elected office
- Student
- Temp worker