Trends in Storm Water-Related Perceptions, Knowledge and Practices Plus Implications For Education Outreach

A Study Based on 2009 and 2003 Survey Data From Select Dane County Communities

Final Report

Prepared for the Madison Area Municipal Storm Water Partnership

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Introduction

This report presents findings of a study commissioned by the Madison Area Municipal Storm Water Partnership (MAMSWaP). The study was based on a survey that included key questions from a 2003 survey along with new ones. MAMSWaP's Information and Education Committee is reviewing implementation of its 2003 education plan. This report is intended to provide information for the Committee's review of the implementation of the plan and to further discussion of future education outreach activities.

MAMSWaP consists of 19 municipalities, Dane County and the University of Wisconsin – Madison. They jointly apply for and implement a municipal storm water discharge permit from the Wisconsin Department of Natural Resources. Members 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, Madison, Middleton, Westport and Windsor.

MAMSWaP receives a single permit rather than each municipality receiving individual permits under Wisconsin Administrative Code NR 216. The goal of the permit program is the reduction of negative impacts on water quality in lakes and streams from urban sources of storm water runoff. The code also requires an education and outreach plan.

This report has four sections and two appendices. Section I covers methodology. Section II presents trends based on statistical significant findings from an analysis of data from comparable 2003 and 2009 survey questions. Trends related to perceptions, knowledge and practices associated with storm water are presented. Overall, perceptions and knowledge related to water quality and regarding storm water remained relatively stable and unchanged while use of practices fluctuated. *Perceptions* covered data from survey questions about quality of local water bodies and sources contributing to their water quality problems, plus opinions on the effectiveness of nine potential efforts to address storm water problems. Under *knowledge* were data from questions about where storm water goes after it left a respondent's property and neighborhood, how runoff contributes to other water related problems and awareness of local municipal efforts to improve water quality. Data about use of *Practices* were from a three part survey question.

Section III presents findings from questions unique to the 2009 survey and intended to generate information for planning future outreach activities. Questions asked about (a) attendance during the last two years at classes and/or workshops and public meetings to learn effects of runoff, (b) sources used to learn about effects of runoff from rain or melting snow or practices, and (c) frequency certain Internet sources were used and use of the web site myfairlakes.com. Also included is an analysis of challenges to doing practices based on data from a specific open-ended question about such challenges.

The last section, (IV) presents some implications derived from the study for education outreach programming in the area of storm water management. Six are offered for consideration by MAMSWaP's Information and Education Committee with the intent of stimulating further discussion of future activities.

Appendix A is copy of the 2009 survey and B supplements information presented in Section II of this report. Under separate covers are two appendices. Appendix C shows distribution of responses for 2003 survey questions. Appendix D has summaries of findings from the 2009 survey plus data displays.

This report has some limitations regarding potential use. While the report is useful for understanding effects of outreach efforts, assigning attribution to the 2003 Plan itself is problematic, since tracing root causes is difficult, given the multiplicity of factors involved in changing storm water-related behaviors. In short, specific programs and activities spelled out in the 2003 Plan are among many factors contributing to any changes in the public's behaviors associated with mitigating the negative effectives of storm water runoff.

Furthermore, reported findings can not be linked to the impact of any one person who has been involved with MAMSWaP or to the impact of specific education programs. Actions of individuals and impacts of specific programs were never the foci of the study. Understanding impacts of programs will require evaluations of each program or some logical groups of programs.

I. Methodology

The study is an example of survey methodology coupled with statistics and tests of significance. Content analysis was used to a lesser extent. This section ends with a comparison of 2003 and 2009 samples.

Sampling Procedures

Sampling for the 2003 and 2009 surveys resembled drawing stratified, random samples of households from each city, village and township belonging to MAMSWaP. The 2009 sample had 750 households compared to 562 households making up the 2003 sample. The increase in sample size is accounted for Stoughton and Cottage Grove joining MAMSWaP, as well as an increase in sample size for all other municipalities except Madison.

For the 2009 survey, lists of households from the involved municipalities were obtained from the City of Madison's Engineering Division. The Division provided list from all cities, villages and townships belong to MAMSWap. The households for the 2003 survey were selected from mailing lists provided by water utility records acquired from participating communities, or from mailing lists acquired through the Dane County Planning & Development Office.

The total numbers making up the 2003 and 2009 samples were pre-determined, based on standard guidelines for ideal numbers for doing statistical analysis and a decision to accommodate, to some extent, size of community. However, samples were not directly proportional to the relative population of each municipality. For 2009, numbers were drawn as follows: 150 households from the City of Madison, 50 households from each of the cities of Fitchburg, Middleton and Sun Prairie, 40 households from each of the cities of Monona, Stoughton and Verona, 30 households from each of the villages of Cottage Grove, DeForest, Maple Bluff, McFarland, Shorewood Hills and Waunakee; and 25 households from each of the towns of Blooming Grove, Burke, Madison, Middleton, Westport and Windsor.

For 2003, the sample size for City of Madison was the same. There were 42 households each from Fitchburg, Middleton, and Sun Prairie. This compared to 22 households each from Monona and Verona, DeForest, Maple Bluff, McFarland, Shorewood Hills, Waunakee, as well as from the Towns of Blooming Grove, Burke, Madison, Middleton, Westport, and Windsor.

Survey Administration

The 2009 survey was conducted from mid-April to early June following research based methods[1]. Similar procedures were followed in 2003. Surveys were mailed first class and involved five contacts. Individuals from households received advance letters addressed to them personally. The letter offered the option to complete the survey online and provided a URL. Within two weeks after mailing the advance letters, all households received a survey packet. Inside were a questionnaire, a pre-addressed postage-paid envelope, and another letter describing the survey. Everybody was assured of confidentiality. Those not responding after seven days received a follow up letter. Households that did not respond within 10 days of the follow up letter received another complete survey packet. Two weeks later, those who still did not respond were mailed a final reminder letter.

Response Rates

The 2009 response rate was 59.3% (438/738) compared to 62% in 2003. Twelve of the 750 surveys were returned because of invalid addresses, resulting in an actual sample of 738. Of this number, a total of 432 responded either through mail or online. Another six surveys were received after analysis was completed. These are not part of data reported here but counted in the response rate. Invalid addresses are not included in the response rate.

Online completions equaled 166 compared to 266 mailed surveys. Twelve of the 166 online surveys only had the identification number, leaving 154 for analysis.

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[1] Dillman, D. (2007). *Mail and internet surveys, the tailored design method.* Hoboken, NJ: John Wiley.

Response Rate by Municipality for 2009

Table 1 shows 2009 response rates for municipalities, which varied from a low of 44% for Town of Windsor to a high of 72% for the Town of Middleton. Information about 2003 response rates according to municipalities could not be located.

Table 1: 2009 Survey Response Rate According to Municipality

Cities	**Sample Size**	**Response Rate**
Fitchburg	50	58.0%
Madison	150	58.7%
Middleton	50	52.0%
Monona	40	70.0%
Stoughton (Joined after 2003)	40	60.0%
Sun Prairie	50	52.0%
Verona	40	60.0%
Villages		
Cottage Grove (Joined after 2003)	30	46.7%
DeForest	30	53.3%
Maple Bluff	30	53.3%
McFarland	30	56.7%
Shorewood Hills	30	63.3%
Waunakee	30	56.7%
Towns		
Blooming Grove	25	60.0%
Burke	25	48.0%
Madison	25	56.0%
Middleton	25	72.0%
Westport	25	60.0%
Windsor	25	44.0%

Data Analysis Procedures

Data were prepared before analysis begun. Besides studying surveys for the extent they were completed, preparation involved three procedures. First, 2009 completed online responses and mailed survey responses were combined into one dataset using SPSS, a statistical software program. Second, also using SPSS, a database of 2003 and 2009 responses on all repeated questions was created. Third, open-ended survey responses were organized into word files. Files were then studied through content analysis. This involved identifying patterns or commonalities through inductive and deductive reasoning.

The following three types of statistical analyses were conducted.

***Statistical Comparison*:** A statistical comparison was conducted using responses to questions (and sub-parts) asked on 2003 and 2009 surveys. These questions fall into three broad categories of

knowledge, perceptions and respondents' practices for mitigating effects of storm water. Questions and directions had to be worded the same in both surveys to be considered as comparable.

After the 2009 survey was completed, it was coded in a manner that matched the coding of the 2003 survey. The two databases were then merged into one so that each individual response from each survey was included and marked with an identifier noting whether it came from the 2003 or 2009 survey.

Comparisons between years were made using two statistical tools: a t-test that compared mean responses and a Pearson chi-square which compared the categorical distributions. The first statistical test compared the means of those questions for which the responses were logically scalable. For instance, questions on perceptions of water quality had Lickert-like scales ranging from "very poor" to "very good". These questions and others were coded into a four point numerical scales with 1 equal to the most negative response and 4 equal to the most positive. Any responses of "don't know" or "does not apply" were not included in the mean calculation. Following this, a t-test was conducted for each question to determine if any differences in the mean responses between 2003 and 2009 were statistically significant. Furthermore, since it was possible that a mean response to a question did not change while the distribution did, a chi-square test of the categorical distributions was used to validate the results of the t-test. With one exception, the chi-square confirmed the results of the t-test. This means that our conversion of the Likert-like scale questions to numerical values was appropriate.

The second statistical test used was the Pearson Chi-Square. This was used on questions for which responses could not be logically scaled such as binary yes/no questions, residence type or the question that asked respondents about use of practices that potentially reduce water pollution.

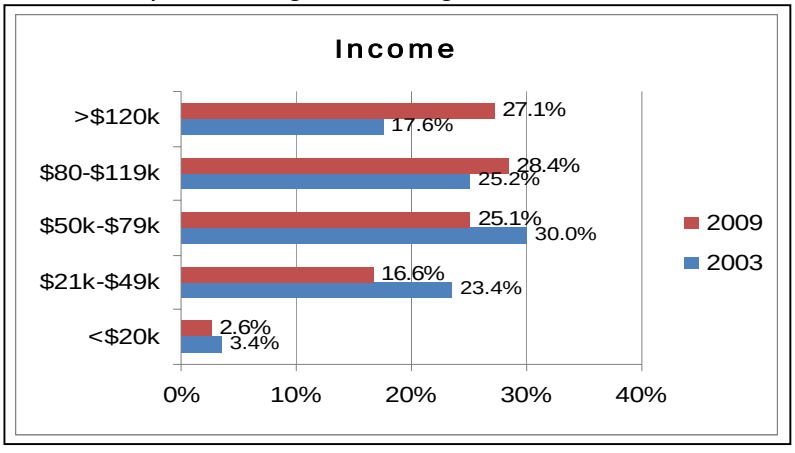
For both the t-test and chi-square, the standard p value of .05, was used at the cutoff for statistical significance. This means that for any difference noted, there is a 95% chance that the difference identified is not due to random variation. Significance therefore supports that a relationship exists.

Correlation Exploration: 2009 survey data were studied to determine any significant patterns, trends and/or relationships using crosstab analysis, correlation statistics and inductive and deductive reasoning. Since none of any statistical significance was identified this report provides no further detail.

Descriptive statistical analysis of 2009 data: Patterns, trends and/or relationships within, among and between responses to questions unique to the 2009 were identified using percentages and means. These were studied using inductive and deductive reasoning with the results being findings.

Comparison of 2003 and 2009 Sample

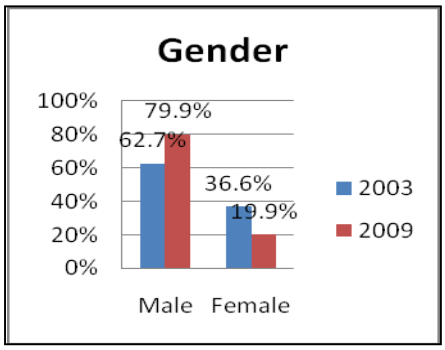
To better understand findings the two samples were compared using income, age, education, and residence type data. For age and education, no significant differences were found. The samples were considered equivalent in this regard.



As for income, members of the 2009 sample had higher incomes than 2003, as shown by the graph to the right. However, the scale of these differences is quite similar to the average increase in personal income in Dane County over the same time period.[2] As such, the two samples were considered equivalent on income because of how household income increased between '03 and '09.

[2] Wisconsin Department of Workforce Development. 2008. *Dane County Workforce Profile*. WCWD Office of Economic Advisors: Madison WI. OEA-10605-P. 9p.

Analysis revealed two differences between the samples. First, the 2009 sample's 79.9% male respondents, was significantly higher than the 62.7% male respondents in 2003.



Samples also differed on primary residence type with more respondents in 2009 living in single family houses. This difference is due to how the two samples were drawn. The sample frame for 2003, based in part on lists from water utilities, allowed for selection of apartment dwellers. In 2009 the sample was drawn from lists of single family households which excluded apartments. Also, the 2009 survey eliminated "apartment" as a response.

For most questions involving perceptions, this difference in residence is of little consequence. However, on questions regarding water quality practices, many are inapplicable to non-homeowners. To account for this, those who checked "other" and "apartment" on the 2003 survey as their current residence were dropped from the analysis of data from the questions about practices that help reduce water pollution.

Type of Residence

	'03	'09
Single-family house	82%	97%
Condominium/townhouse	9%	1%
Apartment	6%	---
Duplex/two-family house	2%	2%
Other	1%	0%

Cottage Grove and Stoughton responses (38) were included in analysis even though they were not MAMSWap members in 2003 because samples were comparable.

II. Trends: Perceptions, Knowledge and Practices

The comparability of the 2003 and 2009 samples allowed for an analysis of how perceptions, knowledge and practices associated with storm water shifted over time. Shifts were considered as trends in the categories listed below. Each category is again defined and in the following presentation corresponding survey questions are identified:

- *Perceptions*: Quality of local water bodies and what contributes to their water quality problems, plus opinions on the effectiveness of nine efforts to address storm water problems.
- *Knowledge*: Where runoff goes, who to contact in case of problems, how runoff contributes to other water related problems and awareness of local government efforts to improve water quality.
- *Practices:* Use of survey listed practices for mitigating effects of storm water.

Analysis led to the conclusion that between 2003 and 2009 perceptions and knowledge related to water quality and regarding storm water remained relatively stable and unchanged while use of practices fluctuated. Specifically, compared 2003 and 2009 distributions of responses to survey questions categorized under perceptions and knowledge were less variable, indicating that both remained relatively stable. In contrast, responses on the practice question varied considerably with statistically significant increases in five practices and a decrease in one.

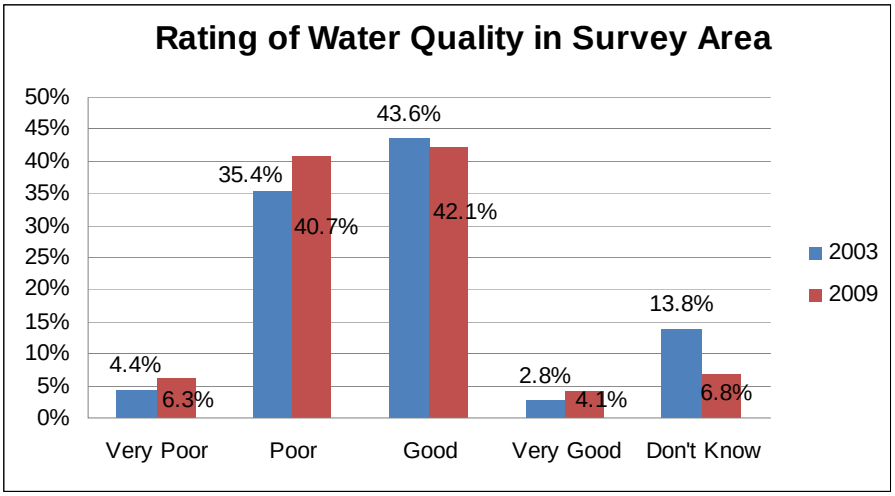
Specific trends for perceptions, knowledge and practices are now presented.

Perceptions: Water Quality of Lakes, Rivers and Streams (2009 and 2003 Questions 1 and 2)

Overall perceptions of the quality of lakes, rivers and streams in the MAMSWaP area remained relatively stable.[3] Two questions queried respondents' ratings of water quality of water bodies in their respective communities and in the area surveyed and served by MAMSWaP. On the second question in which the focus was the local community, analysis revealed no significant differences between 2003 and 2009, suggesting that perceptions remained relatively unchanged. Distributions of responses were also compared with a chi-square test and again there were no differences.

[3] Those wanting to know how perceptions of the different water bodies in 2003 and 2009 actually compared to each other and how these compare to what is actually known about water quality from existing sources will need to use the two appendices (C and D) that are separately published.

Those rating water quality as "good" in the area surveyed and served by MAMSWaP remained relatively the same between the two time periods, as the chart to the right indicates, with the difference being less than 2%. However, those who rated the water quality as "poor" increased in 2009 by nearly 5%, while those who said that they did not know decreased in 2009. Tests indicated that differences were significant even though differences on some ratings were relatively small.



Another trend is the decrease in the gap between ratings of "poor" and "good" between 2003 and 2009. In 2003, the gap between ratings of "good" and "poor" was about 8% compared to less than 2% in 2009.

Perceptions: What Contributes to Water Quality Problems in Lakes, Streams and Rivers (2009 and 2003 Question 3)

Perceptions of what contributes to water quality problems in and around the communities making up MAMSWaP also appeared relatively stable between 2003 and 2009. Question 3 in both surveys was comprised of a matrix of potential sources of water pollution. Respondents were asked to rate the degree to which each of 16 potential sources contributed to water quality problems for the lakes, rivers, and streams in and around their community.

Analysis, including chi-square tests, showed that five (5) of the 16 listed sources of pollution were perceived differently between 2003 and 2009. For the remaining 11 (see Appendix B, Table 1) there was no significant difference, another indication that perceptions remained relatively stable.

Table 2 shows that in 2009 four sources were perceived as contributing less and one source as contributing more to local water pollution. Motor oil/antifreeze, lawn/urban fertilizers and pesticides, soil erosion from construction sites and improper disposal of hazardous household waste were perceived as contributing less while manure from farm animals was perceived as contributing more [4]

Table 2: Changes in Perceptions: Sources of Water Quality Problems at the Community Level

Pollution Source	2003 Mean	2009 Mean	Change*	% Change
motor oil/antifreeze	2.50	2.36	-.14	-4.8%
lawn/urban fertilizers/pesticides	3.31	3.19	-.12	-4.0%
soil erosion from construction sites	2.68	2.57	-.12	-3.9%
improper disposal of hazardous household wastes	2.64	2.48	-.16	-5.5%
manure from farm animals	2.96	3.09	+.13	+4.3%
*t-test showed all differences between years significant to at least 95% confidence				

Perceptions: Efforts for Addressing Storm Water Problems (2009 Question 10, 2003 Question 11)

Another set of comparable questions for 2003 and 2009 related to perceptions of the effectiveness of nine (9) different efforts for addressing storm water problems at the local community level. Between 2003 and 2009 there were no statistically significant differences between sets of responses for seven efforts. Perceptions on these appeared to have remained stable. (See Appendix B, Table 2)

[4] Percentage changes in the means are calculated by dividing the numerical change by the number 3. This represents how much the mean changed relative to the range of the scale from 1 to 4.

As Table 3 shows, perceptions had changed regarding street sweeping with more respondents in 2009 feeling it was effective. Conversely, fewer respondents considered rain gardens as effective efforts to address storm water problems in their community.

Table 3: Perceived Efficacy of Efforts for Addressing Community Located Storm Water Problems

Water Quality Practice	2003	2009	Change*	% Change
street sweeping	2.72	2.85	.13	4.3%
installing rain gardens	2.76	2.61	-.15	-5.0%
* Using a t-test, all differences between years are significant to at least 95% confidence				

Knowledge of Storm Water Runoff, (2009 and 2003 Questions 4, 5 and 6)

There were several questions on both surveys relating to knowledge of storm water and analysis showed that knowledge remained relatively stable between 2003 and 2009. Question four asked respondents to identify the places where storm water goes after leaving their property. Question five was similar, but asked where storm water went after leaving the respondents neighborhood. Each question was posed with multiple options that allowed respondents to select multiple destinations. Therefore each option for these questions was treated as a binary checked/not-checked variable resulting in nine total variables. Differences in the response distributions for each of these variables between 2003 and 2009 were analyzed with a chi-square test. The results showed that there were no statistically significant differences in any of the nine variables.

Whereas questions four and five queried respondents' knowledge of *where* storm water goes, question six queried their knowledge of *how* after it rains or when it snows, the resulting storm water runoff contributes to other water related problems in the respondent's community. This question was presented as a list of eleven problems for which respondents were asked to rate how much storm water contributed to each. A four point scale with 1 equal to "does not contribute" and 4 equal to "major contributor" was used.

In total, perceptions of the contributing nature of storm water runoff significantly changed for two of the eleven listed problem between 2003 and 2009. For the remaining nine, perceptions about how storm water contributed were found to have remained stable as indicated by statistical insignificant differences. (See Appendix B, Table 3 for details)

Specifically, as Table 3 shows storm water runoff was seen as contributing less to lowering groundwater levels (-5.1%) and more to flooding (7.2%). It is possible that the perceived increased impact of storm water on flooding may be due in part to the flooding of 2008 that was experienced by many and widely publicized by local media.

Table 4: The Contributing Nature of Storm Water Runoff to Other Water Related Problems

Storm water effect	2003	2009	Change	% Change
flooding	2.65	2.86	.22	7.2%
lowering ground water levels	2.11	1.96	-.15	-5.1%
* Using a t-test, all differences between years are significant to at least 95% confidence				

Knowledge: Current Efforts by Local Governments to Improve Water Quality (2009 Question 7, 2003 Question 10)

In both surveys, respondents were asked to rate their awareness of current efforts by local governments to improve water quality. Both the means and percentage distributions were tested. Analysis showed that there were no significant differences between 2003 and 2009. This indicates that knowledge and awareness of local efforts remained unchanged between the two time periods.

Practices for Mitigating Effects of Storm Water Runoff (2009 Question 8 and 2003 Question 7)

On the practice side, and in contrast to trends showing greater stability on measures of knowledge and perceptions, there was wider variation between 2003 and 2009, with statistically significant differences

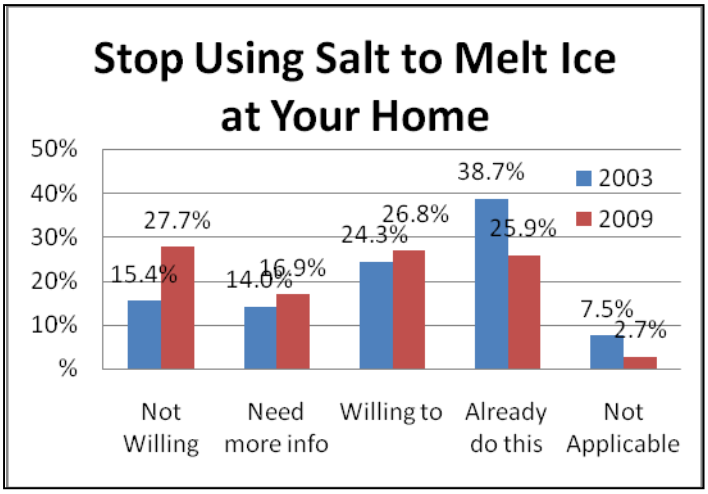
on six of the 14 directly comparable surveyed practices (See Appendix B, Table 4 for the eight with statistically insignificant differences). Specifically, behaviors associated with the composting of leaves and grass clipping through a community program, redirecting downspouts, installing a rain barrel and keeping street gutters clear of leaves and grass increased. Data on rain gardens showed a modest increase compared to 2003 for those who already had one and a substantial decrease in those willing to installing a rain garden. Finally, there was a decrease in the number of those discontinuing salt usage to melt ice at their residence.

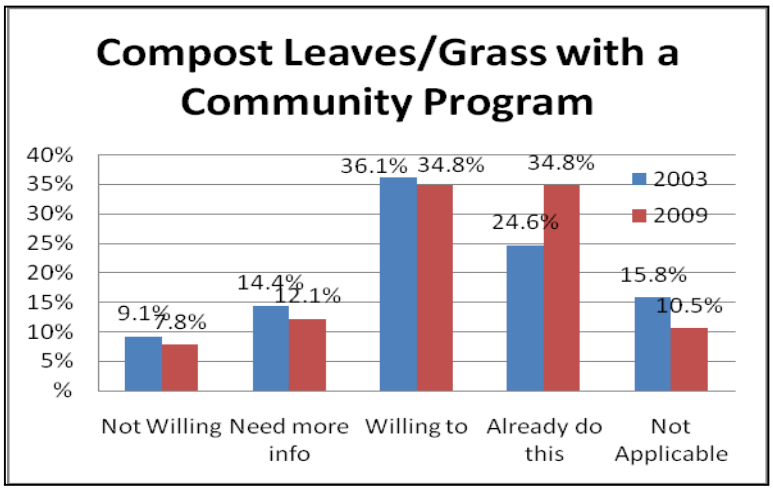
Comparing practices related to applying chemical fertilizer and weed killers was impossible because of changes made in 2009 questions. The 2009 survey had independent questions for each while the 2003 survey combined the two practices. Appendix B, Table 5 shows data from both years. According to 2009 data, 53% of respondents needed more information about applying chemical fertilizers only once or twice a year and nearly 48% also needed more information about applying weed killers once or twice a year. This data suggested that respondents may be receptive to changing their behaviors.

Surveys queried respondents behavior regarding their use of practices designed to prevent or reduce water pollution. Specifically, respondents were asked "Which of the following practices would you do (or have done for you) on a regular basis if you knew that the action would help reduce water pollution? Are you already doing any?" Potential choices were: "Already do this", "Willing to do", "Need more Information", "Not willing to do", and "Not Applicable". Since these responses are not logically scalable, differences between 2003 and 2009 distributions were tested using a chi-square test. As mentioned earlier, it should be noted that non-homeowner respondents to the 2003 survey were left out of this analysis since these practices are not applicable to them. Consequently, these distributions will not exactly match those presented in the 2003 report. Analysis related to each of the six practices is now presented.

The first significant trend in behavior came from a substantial decrease in those refraining from using salt to melt ice. In 2003, 38.7% of the respondents indicated that they had already stopped using salt at their homes. In the 2009 survey, this number dropped to 25.9%.

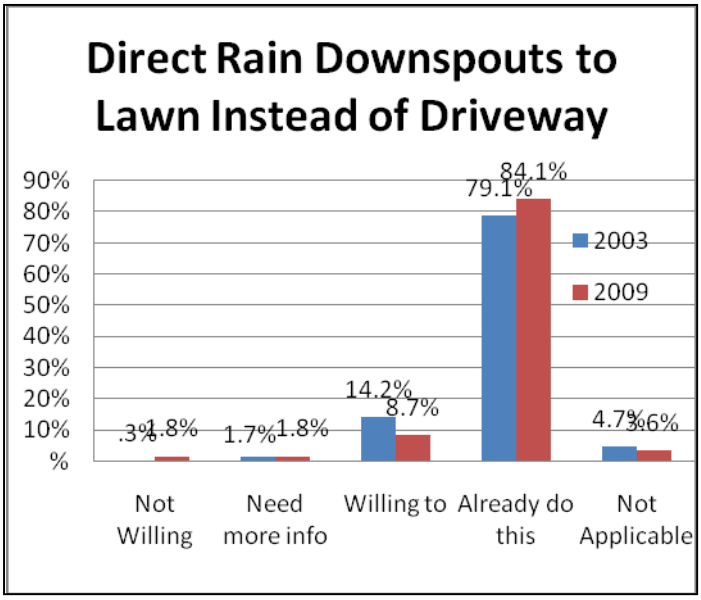
This change was accompanied by a substantial increase in those who were "not willing" to stop using salt going from 15.4% in 2003 to 27.7% in 2009. This result perhaps reflects the record setting snowfall in the 2007-2008 winter and high snow totals in 2008-2009., as well as media coverage of the effects if chloride in aquatic systems.

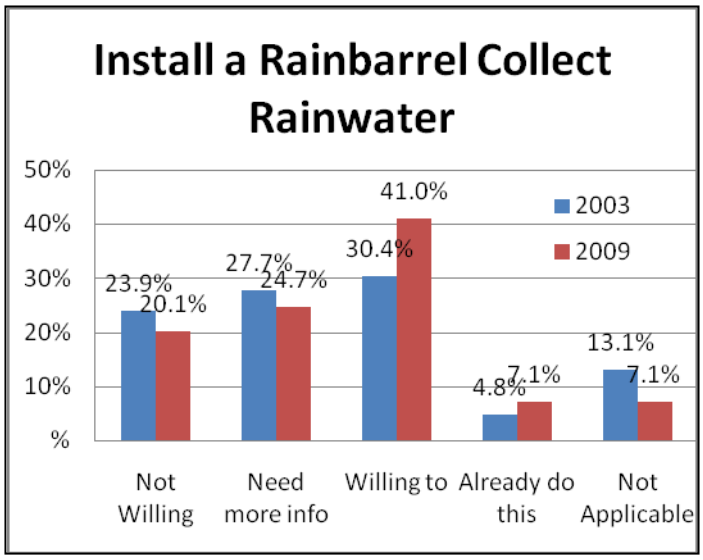




When it comes to composting leaves and grass clipping through a community program the trend becomes an increase in water protective behavior. Those already composting through a community program increased from 24.6% in 2003 to 34.8% in 2009, for net increase of 10.2%. Meanwhile those not willing and needing more information decreased slightly.

High numbers of 2003 and 2009 sample members were already directing their downspouts to their lawns instead of their driveways and the trend continued in 2009, with an increase of 5% for a total of 84.1 % doing the behavior. In contrast, those willing to do so dropped since 2003, from 14.2% to 8.7% in 2009.



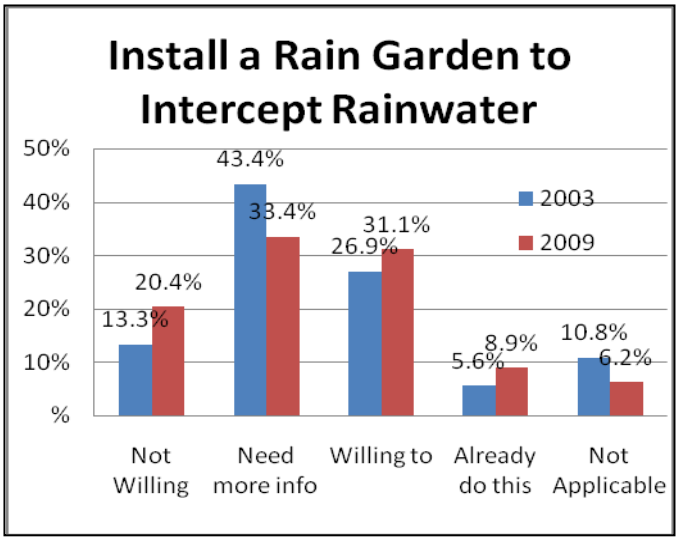


In Dane County, several groups have actively worked in recent years to promote the use of rain-barrels to collect rainwater from the resident rooftops. The percent indicating they already use rain-barrels increased by 2.3% while those not willing decreased moderately. Also notable was the substantial increase in the percent that are willing to do so; increasing by nearly 11% from 30.4% in 2003 to 41.0% in 2009.

In addition to rain-barrels, local groups have been active in promoting the installation of rain gardens to intercept rainwater from downspouts. The overall trend regarding rain gardens is less clear compared to previously reported practices.

Since 2003, there was a modest increase of about 3% of those having a rain garden. There was also a 5% increase in those willing to do have one.

On the other hand, there was a 7.1% increase between 2003 and 2009 of those that were not willing to install a rain garden coupled with a 10% drop in those who need more information. Need for more information suggests some interest.



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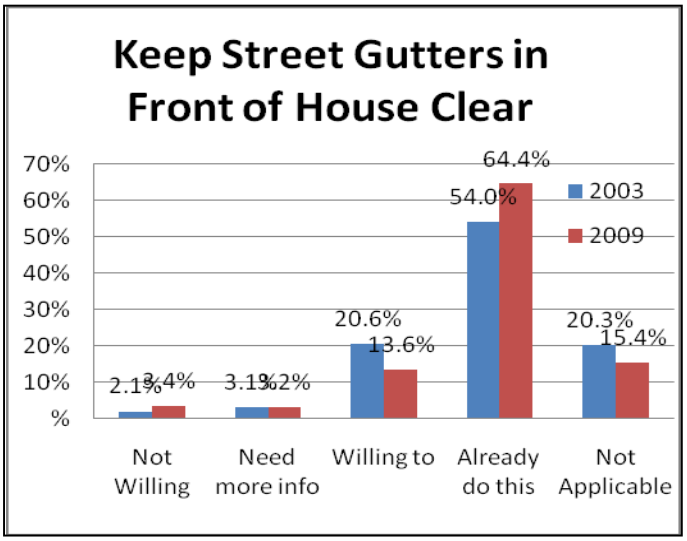
The final statistically significant trend involved the practice of keeping street gutters clear of leaves and grass. In 2003, 54.0% of the respondents indicated they already did this and 20.6% indicated they were willing to do so.

In 2009 the percentage of those already keeping their gutters clear increased 10.4% to 64.4%. In contrast, there was a 7% decrease in those willing to keep their street gutters clear.



To recap: there were wider variations in the data between 2003 and 2009 regarding use of practices for mitigating the effects of storm water runoff, with statistically significant differences on six of the 14 directly comparable surveyed practices. In contrast, there was less variation on measures of knowledge and perceptions. In other words, trends for knowledge and perceptions could be considered as being stable while trends for practices fluctuated.

III. Planning Future Outreach Activities

The report now turns to the second purpose of the survey – providing information for planning future education outreach activities. Four categories of findings are presented.

Using Internet Sources and the Web site myfairlakes.com

Some of those who commissioned the study were especially interested in the extent respondents used internet sources. As Table 5 shows a relatively large majority (61.1%) used search engines daily, while about a third used daily specific bookmarked sites as well as electronic newspapers. Percentages using other survey listed Internet sources daily dropped dramatically. Relatively few respondents ever used myfairlakes.com. Specifically, 12 of the 440 respondents or 2.7% reporting that they had used the site.

Table 5: Use of Internet Sources (n=446)

	Never	Rarely	Monthly	Weekly	Daily
Search engines	13.1%	4.4%	3.5%	18.0%	61.1%
Specific bookmarked sites	32.4%	7.3%	8.7%	18.3%	33.3%
Electronic newspapers	23.6%	19.9%	6.2%	18.3%	31.9%
Facebook, MySpace, etc.	63.4%	14.3%	4.7%	8.2%	9.4%
Listservs	72.1%	14.7%	3.8%	2.6%	6.9%
Blogs	57.5%	25.0%	4.9%	6.8%	5.8%
Electronic magazines	50.0%	25.5%	11.0%	9.6%	4.0%
Pod casts	69.0%	20.7%	4.5%	2.6%	3.3%
YouTube	42.5%	25.0%	12.9%	16.4%	3.3%

Sources Used to Learn About Effects of Storm Water Runoff

Another interest germane to planning outreach activities is how individuals learn about storm water runoff. As Table 6 shows, a majority of respondents had learned about effects of runoff from rain or melting snow or practices mentioned in the survey from local daily or weekly print newspapers. Television or radio ads or programs were second in frequency followed by community newsletters.

Table 6: Sources Respondents Learned From (n=445)		
	Frequency	Percentage
Local weekly or daily print newspapers	261	58.6%
Television or radio ads or programs	190	42.6%
Community newsletters	170	38.2%
Internet Sources	100	22.4%
Printed information from a university or governmental agency	91	20.4%
Displays at meetings, exhibitions and shows	61	13.7%

*Percentages will not add up to 100% due to respondents checking multiple sources.

Attendance at Related Classes and Workshops and Public Meetings

A third potentially helpful piece of planning information is the respondents' history of attending related classes, workshops and public meeting. One survey question asked respondents how many classes and/or workshops they had attended during the last two years to learn about effects of runoff from rain and melting snow or practices mentioned in the survey. Another question asked respondents how many public meetings, in the last two years, about effects of runoff from rain and snow or practices mentioned in the survey did they attend. As Tables 7 and 8 show, overwhelming majorities did not attend, within the last two years, classes, workshops or public meetings related to storm water matters.

Table 7: Classes/Workshops Attended in Last Two Years (n=443)					
	None	**1**	**2**	**3**	**4 or more**
Frequency	408	28	5	0	2
Percentage	92.1%	6.3%	1.1%	0%	0.5%

Table 8: Public Meetings Attended in Last Two Years (n=445)		
	Frequency	Percentage
No	408	91.7%
Yes	37	8.3%

Challenges to Using Practices

Insights about challenges or obstacles respondents feel that they face to using practices for mitigating the effects of storm water runoff is helpful in planning outreach activities. Content analysis was used to understand written comments to this question.

> "Please review practices you checked as "Not willing to do" in Question 8. Are there any that would be very challenging for you to do? If yes, please identify practices and then explain why these would be challenging".

As Table 9 shows, challenges to use a practice varied from age to property characteristics. Furthermore, except for cost, challenges seemed to be specific to each practice rather than pertain to most practices. In other words, obstacles are linked to a specific practice and any one obstacle does not necessarily apply to all practices for reducing the negative effects of storm water runoff.

Table 9: Reporting Challenges to Doing Practices That Help Reduce Water Pollution	
Practices Cited	**Challenges Mentioned**
Take used automotive oil to a recycling center	• Too far away • Difficult to use • Too much extra work, age • Cost
Have your oil changed at an automotive service center	• Cost (2) • Damage to car
Conduct soil tests to determine fertilizer application rates for your lawn	• Cost
Stop using chemical fertilizers completely	• Want green lawn (7) • Need to control weeds (6) • Not major issue
Stop using weed-killers completely	• Want green lawn (7) • Need to control weeds (5) • Need natural alternative (2)
Stop using salt to melt ice at your residence	• Driveway is steep (12) • Safety (12) • Sand ineffective (4) • Unwilling to stop, age (4) • Fear of being sued (3) • By law need sidewalk cleared (3) • Need alternative (2)
Compost leaves and grass clippings in yard	• Quantity of leaves too great (2) • Cost • Yard too small • Age • Inconvenient • Deed restrictions • Don't want one
Install a rain barrel or cistern to collect rainwater from your downspouts	• Habitat for mosquitoes (4) • Cost (4) • Don't want one (2) • Not enough room in yard (2) • Unsightly • Storage on property infeasible • Cannot install with amount of downspouts • Useless • Inconvenient
Wash your car on your lawn	• No room on lawn (8) • Damage to lawn (5)
Wash your car at a car wash	• Cost

IV. Implications

The Madison Area Municipal Storm Water Partnership is required to have an education plan. This report presents information that hopefully will be useful for any review of past outreach activities and to plan future ones. With the future in mind, offered now are six implications for planning and conducting storm water related outreach activities. These implications are offered in the spirit of sharing insights derived from reflecting upon the results of the study with the intent of stimulating discussion rather than listings specific recommendations regarding a future education plan.

The Potential Value of Campaigns and Close Collaboration

Among the practices that increased were two associated with mitigating the effects of leaves as they are transported by storm water runoff into area water bodies. Leaves in runoff are a source of nutrients for algae blooms. Behaviors associated with composting leaves using a community program and keeping street gutters clear of leaves and grass increased considerably since 2003; by about 10% for both.

MAMSWaP endorsed and participated in the "*Love Your Lakes, Don't Leaf Them"* Campaign. Billboards, yard signs, pamphlets, and website-based information educated the public about the adverse effects of leaves on water bodies and effective countermeasures. Sponsors of the campaign included Friends of Lake Monona, Friends of Lake Wingra, Friends of Starkweather Creek, City of Madison, and Madison Advertising Federation.

This study did not address what influenced the increase in behaviors noted above. Nevertheless, the campaign illustrated how to work towards specific behavioral change. Besides focusing on specific behavioral change, the campaign included close collaboration with local citizen groups intensely interested in promoting the desired behavioral change. In short, focusing on behavioral change, along with involving neighborhood groups and committed stakeholders, could be a model for other outreach efforts.

Rain Gardens: More Reluctance Yet A Substantial Audience

This study uncovered some noteworthy shifts between 2003 and 2009 regarding rain gardens. Specifically, significantly fewer respondents in 2009 considered rain gardens as an effective effort to address storm water problems in their community compared to 2003. Furthermore, while those who already employed rain gardens and those willing to do so had slightly increased in 2009 compared to 2003, there was a greater increase (7%) of those not willing to install a rain garden. In addition, there was a 10% drop in those who reported needing more information. Need for more information suggests some interest and this could have dropped compared to 2003.

These data suggests that reluctance to install a rain garden may be increasing and perhaps for various reasons, including being more knowledgeable about on-going efforts, cost and how landscape features matter. If so, this complicates outreach efforts in the sense that solely educating all audiences about the environmental merits of installing a rain garden may be insufficient. As MAMSWap staff and Committee Members are well aware, outreach supporting rain gardens will need to target sources of reluctance as well as consider geography or features of the landscape when selecting targeted audiences.

On the other hand, the 2009 survey showed that there still were large numbers willing to install a rain garden (31%), as well as those wanting more information (33%). This suggests that a substantial audience willing to consider a rain garden still remains.

Targeting Behavioral Change to Further Trends

Section II concluded that perceptions of and knowledge about storm water related matters, as well as perceptions of water quality remained relatively stable and unchanged since the 2003 survey, yet some practices increased. This conclusion is associated with a phenomena noted by community-based social marketing theorists. They note that behavioral change does not require changes in attitudes. Some of this phenomenon was evident in this study. For example, differences between 2003 and 2009 perceptions of how grass clippings and leaves contributes to water quality problems of local water bodies was statistically insignificant; suggesting there was really little or no change. Yet, those already composting leaves and grass clippings through a community program increased by 10%.

Advocates of community-based social marketing, such as Doug McKenzie-Mohr, say that strategies should be targeted at behavioral change with a focus on removing obstacles to desired behaviors, as well as providing incentives rather then focused on change in attitudes. If they are right, typical outreach strategies aimed at changing attitudes or aimed at disseminating information are less important.

Many actions listed in the lengthy Actions and Timeline section of the 2003 Plan are aimed at information dissemination and education in general and targeted at many audiences as opposed to strategies

targeted at specific behavioral changes for specific audiences.[5] Perhaps the Committee on Information and Education should revisit how social marketing practices could be used to further positive trends already underway as evidenced by this study.

One example of a potential opportunity to further a positive trend is the substantial increase in the numbers who are composting leaves and grass clipping through a community program couples with a more moderate increase in those willing to do so. Keeping leaves out of storm water has a significant environmental impact. Thus using social marketing to learn more about behaviors related to managing and disposal of leaves, especially obstacles and incentives, and to fashion a targeted strategy may have a high payoff.

As the Committee is well aware of, focusing on behavioral change has its own challenges. One is the requirement for detailed information which can be costly to collect. Yet, costs for making decisions without adequate information may be equally high in the long term.

More Use of Informal Education Venues

Survey data suggested that target audiences were not actively searching for information about storm water issues and practices. Instead, they may notice relevant information as news and/or articles in local print newspapers. A high percentage of respondents learned about the effects of runoff from rain or melting snow or practices mentioned in the survey from local daily or weekly print newspapers. In contrast, few used the myfairlakes.com, a MAMSWaP's resource for storm water runoff practices.

Respondents were also distinguished by their low levels of participation in workshops and classes about effects of runoff and practices to reduce those effects. Respondents' attendance, during the previous two years, at public meetings about effects of runoff and practice was also low, as was their awareness of current efforts by local governments to improve water quality in their communities.

All of the above points towards the important role of informal education in outreach programming. Informal education venues include public events such as the Garden Expo, which already is used, to some extent, for delivering storm water related information through a booth. Greater use of such venues could be effective, including offering workshops or demonstrations. Increased publicity of efforts of local governments to improve water quality may also be warranted.

Uncertainty Regarding More Use of Internet Sources

Overall, many respondents appeared to be somewhat traditional regarding their use of the internet. Many used a search engine daily, while about a third used specific bookmarked sites and a little less than a third use electronic newspapers. As already noted, very few ever used myfairlakes.com. Users of newer internet forms, such as social networking sites (e.g., Facebook) were also relatively few, as were users of listservs, blogs, electronic magazines, pod casts and YouTube.

Given these findings, MAMSWap faces uncertainty as it considers greater use of survey listed Internet sources. The widespread use of search engines is a plus, yet as the phrase suggests, this requires active interest in some topic or problem and the motivation to search. Most respondents appear to have low levels of active interest in matters related to storm water, as indicated by low participation in workshop and public meeting, plus use of passive ways (i.e., daily and weekly print newspapers) to learn about the effects of storm water runoff and practices.

While data showed low usage of myfairlakes.com this finding too is accompanied by uncertainty. Lack of use is certain but reasons for underutilization of the site are not well understood and were not examined in the 2009 survey This situation may require further study before embracing greater use of the Web site as an outreach strategy.

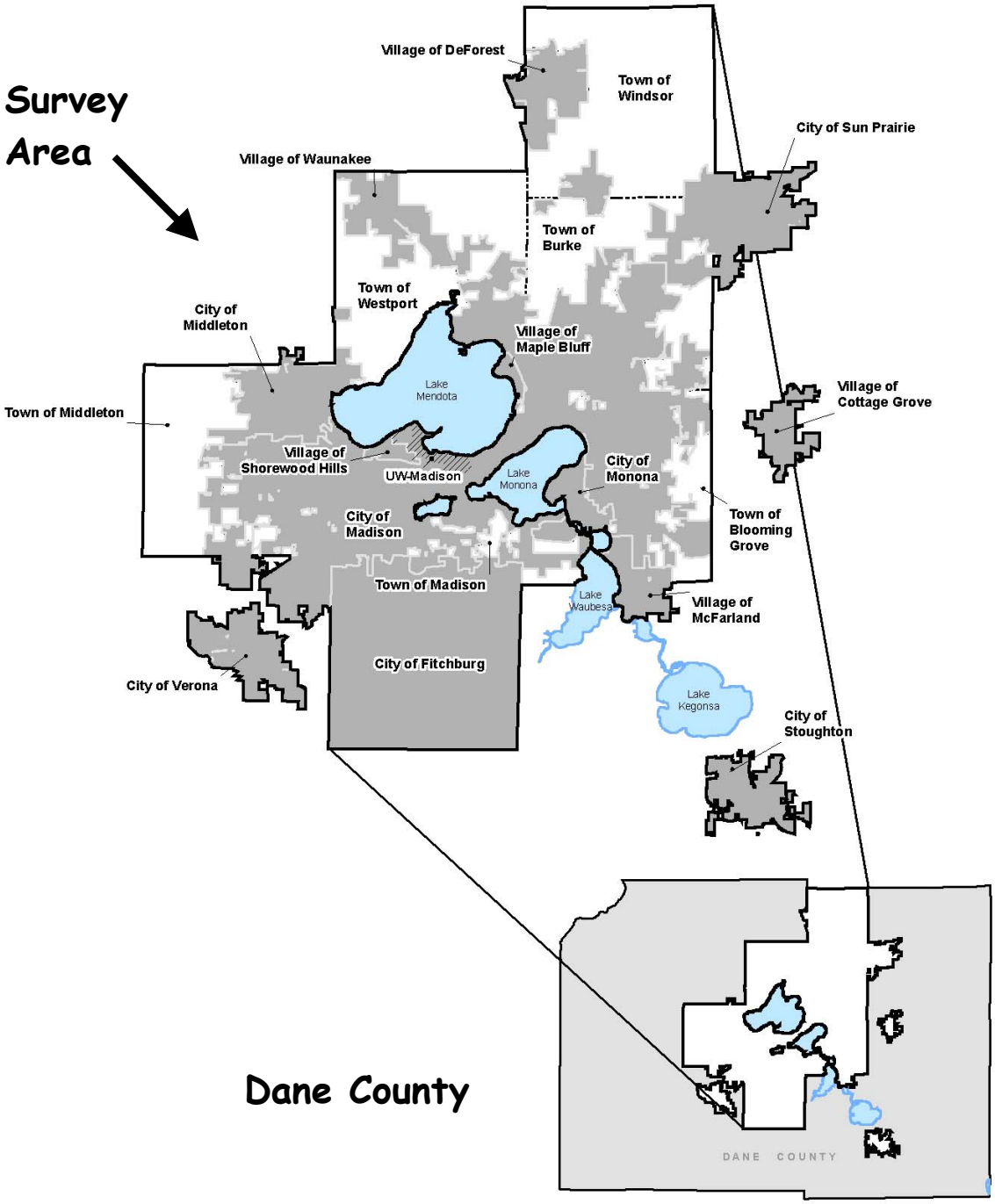
[5] MAMSWaP's current education plan was influenced by community-based social marketing; citing McKenzie-Mohr when explaining that the education program stresses the importance of changing behavior. This citation reflects the Committee's lengthy review of social marketing as it was developing the 2003 plan.

Being Opportunistic For Behavioral and Educational Purposes

Long termer changes in behaviors associated with six practices for mitigating the effects of storm water runoff were reported. Among them was, between 2003 and 2009, a decrease in refraining from salt used to melt ice at their residence. The report speculated that this result was perhaps best understood given the record setting snowfall in the 2007-2008 winter and high snow totals in 2008-2009. Such natural events may provide educational opportunities for using alternatives to salt and how excessive salt impacts water quality of lakes. In other words, educational and behavioral change strategies should be opportunistic at times, providing educational materials or articles in local newspapers about desirable practices and behaviors. However, being opportunistic requires flexibility in the education plan itself; allowing for rapid responses to unfolding events, as well as adequate resources to support such rapid response.

These six implications point out that designing and carrying outreach in the storm water arena is not easy. Members of the Information and Education Committee and the staff of MAMSWaP are to be commended for taking on this challenge and for their efforts to educate their publics on issues and practices related to storm water. Hopefully, this report will contribute to the Committee's future efforts to mitigate the adverse effects of storm water runoff through education outreach.

Your Views on Local Water Resources



This survey is conducted by the University of Wisconsin-Extension on behalf of 19 area communities, Dane County, and UW-Madison. Results will help programs for protecting and improving water resources in your community.

Thank you for completing this questionnaire. Please answer questions by filling in the circle that best matches your response and provide any information requested. Please don't worry about providing the "right" answer – the survey gathers information about perceptions of water resources, about water quality issues and practices for managing runoff from rain and melting snow. **"Stormwater"** is often used to refer to such runoff. Thanks for your help!

Your Perceptions of Local Water Resources

1. In general, how would you rate the 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
O	O	O	O	O

2. In general, how would you rate the water quality of the lakes, rivers, and streams located in and around your community?

Very Poor	Poor	Good	Very Good	Don't Know
O	O	O	O	O

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

	Major Contributor	Moderate Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
Discharges from sewage treatment plants	O	O	O	O	O
Pet waste	O	O	O	O	O
Improper disposal of used motor oil & antifreeze	O	O	O	O	O
Air pollution from industrial activities	O	O	O	O	O
Lawn/urban fertilizers and pesticides	O	O	O	O	O
Manure from farm animals	O	O	O	O	O
Stormwater runoff from streets & highways	O	O	O	O	O
Stormwater runoff from residential rooftops and driveways	O	O	O	O	O
Stormwater runoff from non-residential rooftops and parking lots	O	O	O	O	O
Grass clippings and leaves	O	O	O	O	O
Soil erosion from construction sites	O	O	O	O	O
Street salt and sand	O	O	O	O	O
Discharges from industry	O	O	O	O	O
Agricultural fertilizers and pesticides	O	O	O	O	O
Soil erosion from farm fields	O	O	O	O	O
Improper disposal of hazardous household wastes	O	O	O	O	O

4. **After it rains or when snow melts, where do you think the resulting stormwater runoff goes as it leaves your property? (Please select all that apply)**

   - ○ I don't know
   - ○ Into a storm drain system (curbs, street-gutters, and storm drains)
   - ○ Into a ditch drainage system
   - ○ It does not leave my property
   - ○ Other: Please identify _____

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

   - ○ I'm not sure where the water goes
   - ○ To a creek, stream, river, or lake, without treatment
   - ○ To a municipal sewage treatment system
   - ○ To a holding pond
   - ○ To a field or infiltration basin
   - ○ Other: Please identify _____

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	Moderate Contributor	Minor Contributor	Does Not Contribute	Don't Know/ Not Sure
Flooding	○	○	○	○	○
Increased numbers of zebra mussels	○	○	○	○	○
Weed and algae growth in lakes	○	○	○	○	○
Negative impacts on fish habitat	○	○	○	○	○
Negative impacts on habitat for wildlife	○	○	○	○	○
The quality of local drinking water	○	○	○	○	○
Negative impacts on local swimming and beach areas	○	○	○	○	○
Delivery of sediment to local lakes and streams	○	○	○	○	○
Increased temperatures in lakes and streams	○	○	○	○	○
Reduction in normal flow of local streams when it's not raining	○	○	○	○	○
Lowering groundwater levels	○	○	○	○	○

7. **Which of the following statements best describes your level of awareness about current efforts by your local government to improve water quality in your community?**

   - ○ I am not aware of any existing efforts.
   - ○ I think activities are taking place, but I don't know very much about them.
   - ○ I am generally familiar with efforts to improve water quality in my community.
   - ○ I am very knowledgeable about existing efforts.

Practices, Concerns, and Efforts

8. Which of the following practices would you do (or have done for you) on a regular basis if you knew that the action would help reduce water pollution? Are you already doing any?

	Already do this	Willing to do	Need more Information	Not willing to do	Not Applicable
Take used automotive oil to a recycling center	O	O	O	O	O
Have your oil changed at an automotive service center	O	O	O	O	O
Conduct soil tests to determine fertilizer application rates for your lawn	O	O	O	O	O
Apply chemical fertilizers once or twice per year	O	O	O	O	O
Apply weed-killers only once or twice a year	O	O	O	O	O
Stop using chemical fertilizers completely	O	O	O	O	O
Stop using weed-killers completely	O	O	O	O	O
Stop using salt to melt ice at your residence	O	O	O	O	O
Compost leaves and grass clippings in your yard	O	O	O	O	O
Compost leaves and grass clippings through a community program	O	O	O	O	O
Use a mulching lawnmower	O	O	O	O	O
Direct rain downspouts to your lawn rather than your driveway	O	O	O	O	O
Install a rain barrel or cistern to collect rainwater from your downspouts	O	O	O	O	O
Install a “rain garden” to intercept rainwater from your downspouts	O	O	O	O	O
Keep street gutters in front of your residence clear of grass clippings and leaves	O	O	O	O	O
Wash your car on your lawn	O	O	O	O	O
Wash your car at a car wash	O	O	O	O	O
Clean up and dispose of pet waste	O	O	O	O	O

9. Please review practices you checked as “Not willing to do” in Question 8. Are there any that would be very challenging for you to do? If yes, please identify practices and then explain why these would be challenging.

O No

O Yes: Please identify practices and explain why they are challenging

10. In your opinion, if implemented, how effective are the following types of efforts for addressing stormwater problems in your community?

	Very Effective	Effective	Somewhat Effective	Not Effective	Don't Know
Street sweeping	○	○	○	○	○
Installing rain gardens	○	○	○	○	○
Leaf & yard waste collection	○	○	○	○	○
Developing facilities where stormwater can seep into the ground (referred to as "infiltration" facilities)	○	○	○	○	○
Enforcing local erosion & stormwater ordinances	○	○	○	○	○
Restoring wetlands	○	○	○	○	○
Painting stenciled messages on streets/drains	○	○	○	○	○
Reducing salt usage for melting ice	○	○	○	○	○
Developing buffers along waterways & shorelands	○	○	○	○	○
Other: _____	○	○	○	○	○

Information Sources

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

- ○ I most likely wouldn't contact anyone.
- ○ I wouldn't know who to contact
- ○ Your water utility
- ○ Your municipal government
- ○ Dane County government
- ○ Wisconsin Department of Natural Resources
- ○ An environmental, conservation, or watershed organization
- ○ Other: Please identify _____

12. During the last two years, how many classes and/or workshops have you attended to learn about effects of runoff from rain and melting snow or practices mentioned in this survey?

- ○ None
- ○ 1
- ○ 2
- ○ 3
- ○ 4 or more

13. During the last two years, have you attended any public meetings or events about effects of runoff from rain and melting snow or practices mentioned in this survey?

- ○ No
- ○ Yes

14. Have you ever learned about effects of runoff from rain or melting snow or practices mentioned in this survey from any of the following? (Check all that you have used)

- ○ Information from local weekly or daily print newspapers
- ○ Television or radio ads or programs
- ○ Information from community newsletters
- ○ Information from displays at meetings, exhibitions and shows
- ○ Printed information from a university or governmental agency
- ○ Internet sources

15. Approximately how frequently, if at all, do you use each of the following Internet sources?

	Never	Rarely	Monthly	Weekly	Daily
Electronic newspapers	○	○	○	○	○
Search engines	○	○	○	○	○
Blogs	○	○	○	○	○
Pod casts	○	○	○	○	○
Listservs	○	○	○	○	○
Electronic magazines	○	○	○	○	○
Specific bookmarked sites	○	○	○	○	○
You Tube	○	○	○	○	○
Facebook, MySpace, etc	○	○	○	○	○

16. Have you ever used the web site myfairlakes.com?

- ○ No
- ○ Yes

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. Responses are voluntary and will remain confidential, and once your questionnaire is returned, your responses will not be associated with your name in any way.

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

- ○ Single-family house
- ○ Duplex/Two-family house
- ○ Condominium
- ○ Mobile home
- ○ Other: Please identify _____

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

- ○ Yes
- ○ No

19. What is your age?

- ○ 18 – 24
- ○ 25 – 34
- ○ 35 – 44
- ○ 45 – 54
- ○ 55 – 64
- ○ 65 – 74
- ○ 75 years and older

20. What is your gender?

- ○ Male
- ○ Female

21. Please select the range which best describes your total annual household income:

- ○ Less than $20,000
- ○ $21,000-$49,999
- ○ $50,000-$79,999
- ○ $80,000-$119,999
- ○ $120,000 and over

22. What is the highest level of education you have completed?

- ○ Some high school
- ○ High school degree
- ○ Some vocational training
- ○ 2-year associate degree
- ○ Some college
- ○ 4-year college degree
- ○ Some post-graduate courses
- ○ Graduate/professional degree
- ○ Ph. D degree

23. 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)

- ○ Motorized boating
- ○ Non-motorized boating or sailing
- ○ Fishing
- ○ Hunting
- ○ Swimming
- ○ Ice-skating or winter sports
- ○ Walking, jogging, birding, or similar uses
- ○ Scenic appreciation
- ○ None of the above

Thank you for your time and assistance! Please return this survey in the envelope provided and use the space on the back page for additional comments about topics covered in the survey or water resources issues in your community.

Appendix B: Section II Supplement

Information supplementing Section II of the report, which starts on Page 7 of the report

Table1: Eleven Statistically Insignificant Differences: Perceptions of What Contributes to Water Quality Problems of Lakes, Rivers and Streams In And Around Respondents' Communities

1.	Discharges from sewage treatment plants
2.	Pet waste
3.	Air pollution from industrial activities
4.	Stormwater runoff from streets & highways
5.	Stormwater runoff from residential rooftops and driveways
6.	Stormwater runoff from non-residential rooftops and parking lots
7.	Grass clippings and leaves
8.	Street salt and sand
9.	Discharges from industry
10.	Agricultural fertilizers and pesticides
11.	Soil erosion from farm fields

Table2: Seven Statistically Insignificant Differences: Perceptions Of Efforts For Addressing Stormwater Problems In Communities of The Respondents

1. Leaf & yard waste collection
2. Developing facilities where stormwater can seep into the ground (referred to as "infiltration" facilities)
3. Enforcing local erosion & stormwater ordinances
4. Restoring wetlands
5. Painting stenciled messages on streets/drains
6. Reducing salt usage for melting ice
7. Developing buffers along waterways & shorelands

Table 3: Nine Statistically Insignificant Differences: Perceptions Regarding The Extent Stormwater Runoff Contributes To Water Related Problems In Respondents' Communities

1.	Increased numbers of zebra mussels
2.	Weed and algae growth in lakes
3.	Negative impacts on fish habitat
4.	Negative impacts on habitat for wildlife
5.	The quality of local drinking water
6.	Negative impacts on local swimming and beach areas
7.	Delivery of sediment to local lakes and streams
8.	Increased temperatures in lakes and streams
9.	Reduction in normal flow of local streams when it's not raining

Table4: Eight Statistically Insignificant Differences: 2003 and 2009 Regarding Use of Practices

1. Take used automotive oil to a recycling center
2. Have your oil changed at an automotive service center
3. Conduct soil tests to determine fertilizer application rates for your lawn
4. Use a mulching lawnmower
5. Compost leaves and grass clippings in your yard
6. Wash your car on your lawn
7. Wash your car at a car wash
8. Clean up and dispose of pet waste

Table 5: 2003 and 2009 Data on Respondents' Use of Chemical Fertilizers and Weed Killers.

2003 Survey Practices	Already do this	Willing to do	Need more Information	Not willing to do	Not Applicable
Use a fertilizer with no or limited amounts of phosphorus	8.2	41.8	25.9	2.7	17.4
Apply chemical fertilizers & weed-killers only once or twice per year	37.5	25.9	11.3	5.8	17.4
Stop using chemical fertilizers and weed-killers completely	14	21.6	28.7	25.6	8.2
2009 Survey Practices					
Stop using chemical fertilizers completely	28.0	25.9	20.1	22.2	3.7
Stop using weed-killers completely	24.4	25.6	16.4	30.4	3.2
Apply weed-killers only once or twice a year	18.3	6.6	53.0	7.8	14.4
Apply chemical fertilizers once or twice per year	17.8	8.5	47.8	10.3	15.6

Appendix C

2003 Your Views on Local Water Resources Survey

Response Distributions According to Question

Prepared for the Madison Area
Municipal Storm Water Partnership

By Jacob Blasczyk, Ed.D. Evaluation Specialist

Rachel Ford, Evaluation Assistant

December 28, 2009

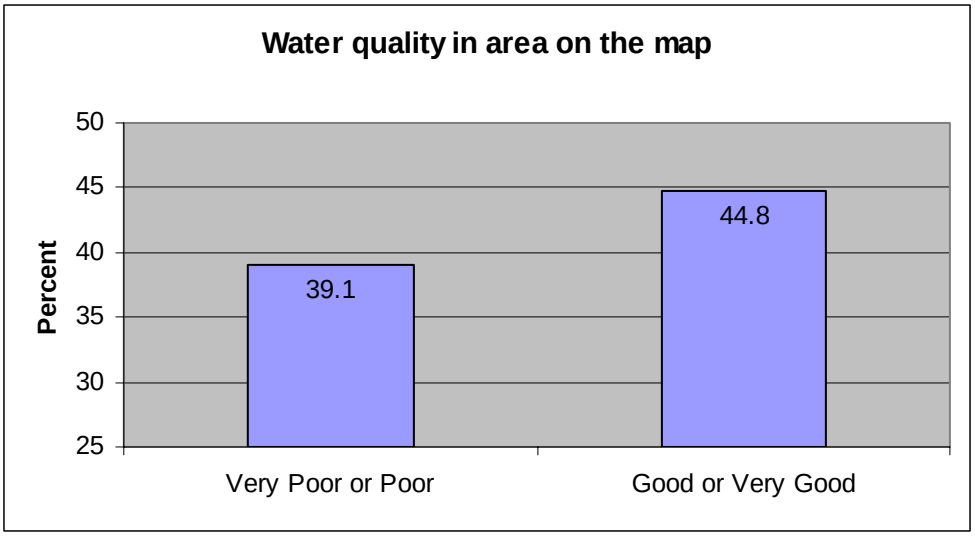
Environmental Resources Center
UW-Madison Extension
445 Henry Mall
Madison, WI 53703

This was prepared from an original lengthy 2003 document. Thus data shown are based on calculations done at that time. The appendix supports the report tilted "*Trends in Storm Water-Related Perceptions, Knowledge and Practices: Plus Implications For Education Outreach*". The report was the result of a study commissioned by the Madison Area Municipal Storm Water Partnership (MAMSWaP). See the full report for further information about MAMSWaP.

Your Perceptions of Local Water Resources

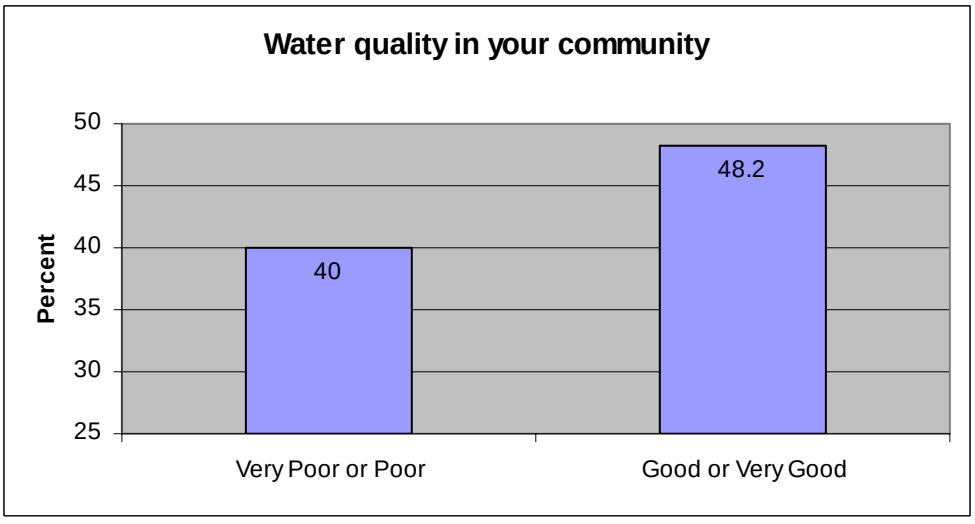
1. In general, how would you rate the water quality of the lakes, rivers, and streams located in the area on the map printed on the front cover?

Water Quality in Area on the Map (n = 319)					
	Very Good	Good	Poor	Very Poor	Don't Know
Percentage	2.7	42.1	34.5	4.6	13.4



2. In general, how would you rate the water quality of the lakes, rivers, and streams located in and around your community?

Water Quality in Your Community (n = 319)					
	Very Good	Good	Poor	Very Poor	Don't Know
Percentage	3.4	44.8	35.1	4.9	9.5



3a. To what extent do you believe each of the following items contributes to water quality problems for the lakes, rivers, and streams in and around your community?

Contributors to Water Quality Problems in Your Community					
	Major	Moderate	Minor	Does Not	Don't Know
Law/urban fertilizers and pesticides	41.8	38.4	11.9	0.6	4.3
Agricultural fertilizers and pesticides	41.8	36.9	11.3	1.5	6.1
Stormwater runoff from streets & highways	39.9	38.7	13.1	0.9	4.6
Street salt & sand	29.0	41.8	22.9	1.2	3.7
Manure from farm animals	24.1	39.6	22.6	2.4	9.1
Stormwater runoff from non-residential rooftops & parking lots	18.6	40.2	28.4	2.1	8.5
Soil erosion from farm fields	18.0	37.2	30.2	2.4	10.1
Discharges from industry	17.7	39.6	24.4	3.4	12.5
Stormwater runoff from residential rooftops & driveways	16.5	36.0	37.2	2.1	7.0
Soil erosion from construction sites	16.5	31.4	37.8	3.4	8.2
Grass clippings and leaves	10.1	27.1	46.3	7.3	7.6
Improper disposal of used motor oil & antifreeze	10.1	24.4	39.6	4.9	19.2
Air pollution from industrial activities	9.8	32.0	37.5	6.7	11.3
Improper disposal of hazardous household wastes	9.8	31.7	39.6	3.4	14.3
Discharges from sewage treatment plants	8.8	25.9	35.1	12.8	15.2
Pet waste	4.0	21.3	50.3	10.4	12.5

3b. From the list of items in question 3a, enter the letters of the three items you feel contribute the most to water quality problems in and around your community.

Most _____ 2nd Most _____ 3rd Most _____

Largest Contributors to Water Quality in Your Community				
	Most	2nd Most	3rd Most	Total of 3
Lawn/urban fertilizers and pesticides	88	50	33	171
Agricultural fertilizers and pesticides	48	50	45	143
Stormwater runoff from streets & highways	47	44	33	124
Discharges form industry	19	27	16	62
Discharges from sewage treatment plants	19	3	12	34
Street salt & sand	18	29	26	73
Stormwater runoff from non-residential rooftops & parking lots	16	31	32	79
Manure from farm animals	15	22	23	60
Soil erosion from farm fields	9	7	14	30
Soil erosion from construction sites	8	15	19	42
Air pollution from industrial activities	8	5	12	25
Improper disposal of hazardous household wastes	6	6	9	21
Stormwater runoff from residential rooftops & driveways	3	9	15	27
Grass clippings and leaves	3	5	10	18
Improper disposal of used motor oil & antifreeze	2	5	2	9
Pet waste	1	1	2	4

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

Where Does Stormwater Go as it Leaves Your Property?	
	Percentage
Into a storm drain system (curbs, street-gutters, and storm drains)	75.9
Into a ditch drainage system	19.5
It does not leave my property	6.7
Other	5.5
I don't know	2.1

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

Percent responding positively

Where Does Stormwater Go Once it Leaves Your Neighborhood?	
	Percentage
To a creek, stream, river, or lake, without treatment	56.1
I'm not sure where the water goes	20.4
To a municipal sewage treatment system	13.7
To a field or infiltration basin	11.3
To a holding pond	7.6
Other	2.7

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?

Contributors to Problems in Community Due to Runoff					
	Major	Moderate	Minor	Does Not	Don't Know
Delivery of sediment to local lakes and streams	38.1	33.8	14.3	3	8.8
Weed & algae growth in lakes	36.6	28.7	14.6	5.2	11.9
Negative impacts on local swimming and beach areas	30.5	32	15.9	7.9	11
Negative impacts on fish habitat	19.5	36.6	18	5.2	17.7
Flooding	19.2	27.4	30.2	9.8	8.5
Negative impacts on habitat for wildlife	9.5	30.5	31.4	8.5	16.5
Increased temperatures in lakes and streams	9.5	20.4	27.1	11.3	29.6
Reduction in normal flow of local streams when it's not raining	9.5	16.2	21.3	16.2	33.8
Lowering groundwater levels	8.2	14.3	16.8	23.8	34.5
The quality of local drinking water	6.7	17.1	33.2	22.3	17.4
Increased numbers of zebra mussels	1.2	6.4	11.3	35.4	40.9

Activities and Information Preferences

7a. Which of the following practices would you do (or have done for you) on a regular basis if you knew that the action would help reduce water pollution?

Actions to Reduce Water Pollution					
	Already do	Willing to do	Need more info	Not willing to do	N/A
Have your oil changed at an automotive service center	80.5	6.1	0.9	5.5	4.9
Wash your car at a car wash	78.7	11.6	0.6	3.7	3.0
Direct rain downspouts to your lawn rather than your driveway	76.2	13.7	2.1	0.6	7.0
Use a mulching lawnmower	62.5	16.2	5.2	3.0	11.0
Take used automotive oil to a recycling center	61.6	7.6	1.2	0.6	27.7
Keep street gutters in front of your residence clear of grass clippings and leaves	50.0	20.4	3.0	2.1	22.0
Clean up and dispose of pet waste	43.9	5.5	1.8	1.5	46.0
Compost leaves and grass clippings in your yard	43.0	19.2	10.1	14.3	12.2
Apply chemical fertilizers & weed-killers only once or twice per year	37.5	25.9	11.3	5.8	17.4
Stop using salt to melt ice at your residence	35.7	24.4	14.0	15.9	8.5
Compost leaves and grass clippings through a community program	22.3	34.5	13.7	8.2	17.7
Stop using chemical fertilizers and weed-killers completely	14.0	21.6	28.7	25.6	8.2
Wash your car on your lawn	13.7	20.7	4.3	23.8	34.1
Conduct soil tests to determine fertilizer application rates for your lawn	10.1	35.1	23.5	8.2	20.7
Use a fertilizer with no or limited amounts of phosphorus	8.2	41.8	25.9	2.7	17.4
Install a “rain garden” to intercept rainwater from your downspouts	5.5	25.0	40.9	12.8	12.5
Install a rain barrel or cistern to collect rainwater from your downspouts	4.3	28.4	26.8	22.6	15.5

8. Which of the following sources would you most likely turn to for information about the practices listed in question 7? (Please select all that apply)

Likely to Turn to For Information on Practices to Reduce Water Pollution	
	Percentage
Wisconsin Dept. of Natural Resources	51.2
Computer (web sites, e-mail, etc.)	46.3
University of Wisconsin/UW-Extension	37.5
An environmental, conservation, or watershed organization	34.1
Dane County	27.4
Your local librarian/library	21.6
Educational Displays in retail stores	14.0
Other	3.4

9. How would you prefer to receive information about activities you can do to improve water quality in your community? (Please select all that apply)

Preferred Way to Receive Information on Community Activities to Improve Water Quality	
	Percentage
Local newspapers	56.4
Community newsletters	43.9
Television	39.3
Inserts in utility bills	38.1
Computer (web sites, e-mail, etc.)	36.9
Letters sent to my home	33.5
Radio	22.6
Public meetings or events	12.8
Displays at retail stores	12.2
Educational workshops	11.3
Through local schools	11.0
I am not interested in this sort of information	2.1
Other	1.2

10. Which of the following statements best describes your level of awareness about current efforts by your local government to improve water quality in your community?

Awareness Level of Local Governments' Current Efforts	
	Percentage
I am not aware of any existing efforts	14.0
I think activities are taking place, but I don't know very much about them	56.7
I am generally familiar with efforts to improve water quality in my community	24.4
I am very knowledgeable about existing efforts	3.4

11. In your opinion, if implemented, how effective are the following types of efforts for addressing stormwater problems in your community?

Effectiveness of Efforts for Addressing Stormwater Problems in Your Community					
	Very	Effective	Somewhat	Not	Don't Know
Restoring wetlands	44.8	23.2	12.5	2.1	14.9
Leaf & yard-waste collection	31.7	40.5	12.5	3.0	8.2
Leaf & yard-waste collection	31.7	40.5	12.5	3.0	8.2
Developing facilities where stormwater can seep into the ground (referred to as "infiltration" facilities)	29.0	30.5	8.5	2.1	26.8
Developing buffers along waterways & shorelands	27.7	27.4	12.2	2.1	28
Enforcing local erosion & stormwater ordinances	27.4	33.5	17.7	1.5	17.1
Reducing salt usage for melting ice	23.5	33.2	23.5	4.3	12.5
Installing "rain gardens"	11.3	23.8	16.5	4.0	41.2
Painting stenciled messages on streets/drains	7.0	15.9	24.1	28.0	21.6
Other_____	---	---	---	---	---

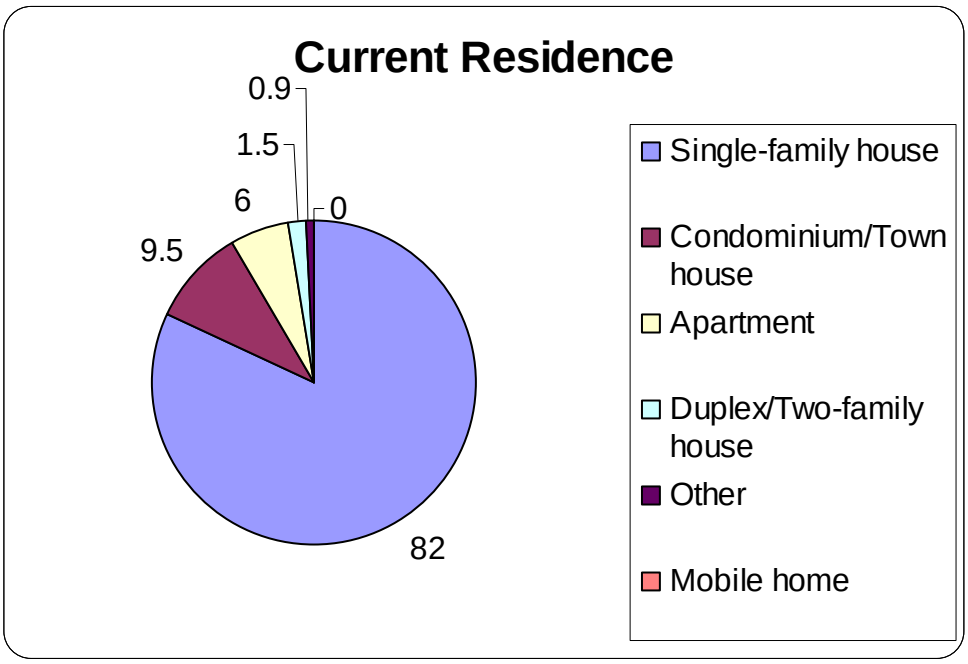
12. In your opinion, which of the following would be the most appropriate entity to contact if you became aware of a problem related to stormwater in your community (for example, a large amount of mud flowing into a storm drain)? (Please select only one)

Contact for Stormwater Related Problem in Your Community	
	Percentage
Your municipal government	49.4
Wisconsin Department of Natural Resources	18.3
Your water utility	16.5
I wouldn't know who to contact with information about a stormwater problem	11.6
Dane County government	8.2
An environmental, conservation, or watershed organization	6.4
Other	1.2

Information About You and Your Residence

The remaining questions are included in order to compare the group of people participating in this survey with the general populations of the communities involved. As a reminder, all responses are voluntary and will remain confidential, and once your questionnaire is returned, your responses will not be associated with your name in any way.

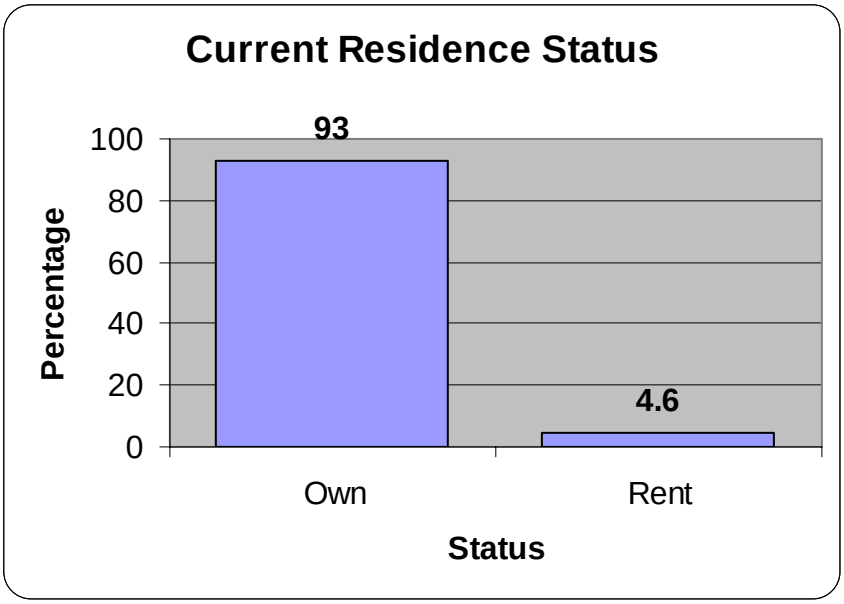
13. Which of the following best describes your current residence?



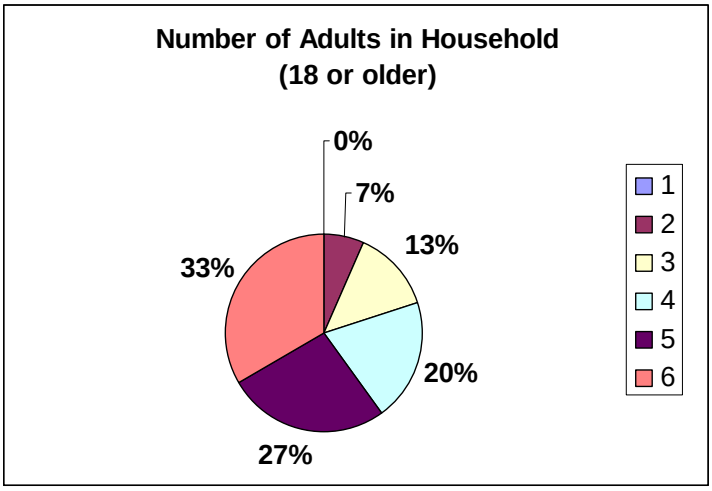
14. What is the source of your household water supply?

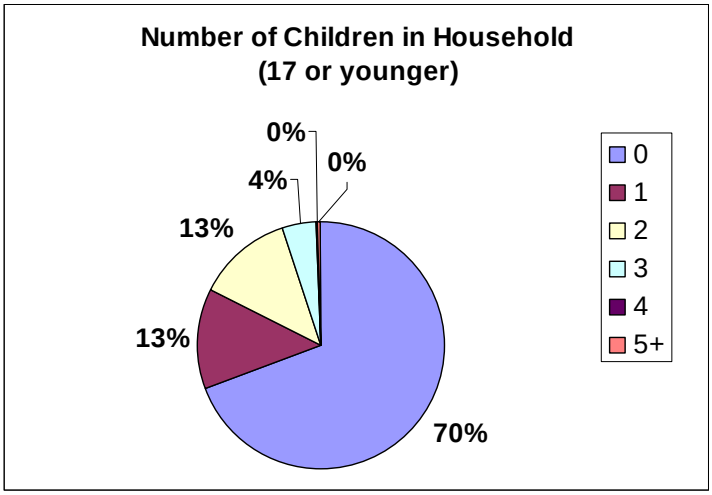
Source of Household Water Supply	
	Percentage
My water comes from a municipality or water utility	76.8
My water comes from a private well on my property	16.8
I don't know	1.2

15. Do you own or rent your current residence?



16. How many adults and children currently live at this residence?





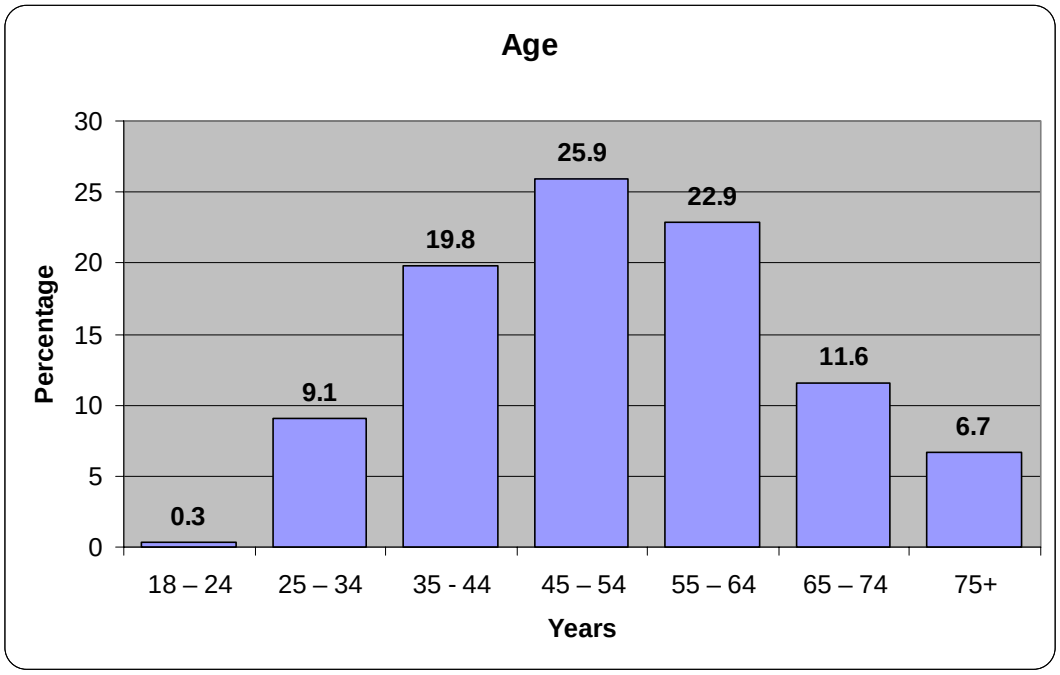
Adults in Residence						
# of Adults	0	1	2	3	4	5
Percentage	0.0	20.1	64.6	9.8	2.4	0.3

Children in Residence						
# of Children	0	1	2	3	4	5+
Percentage	69.2	13.4	12.5	4.3	0.3	0.3

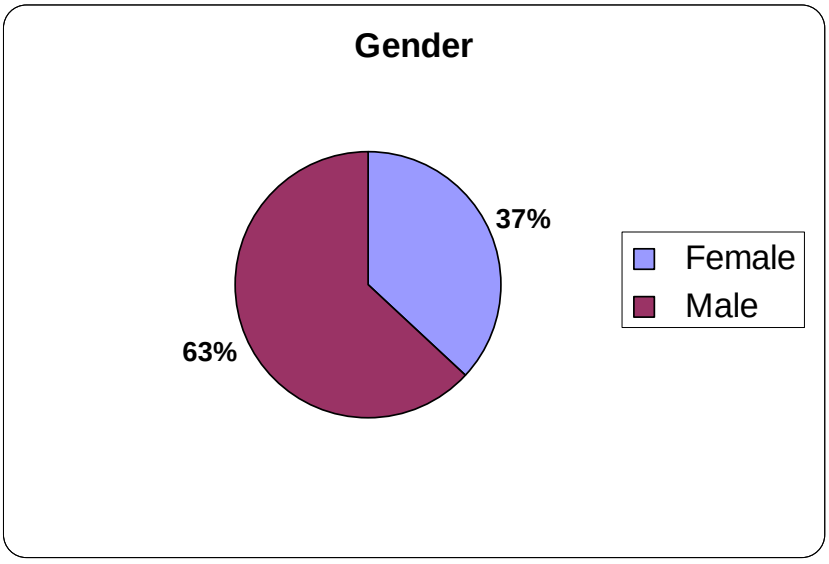
17. Are you currently a member of an environmental, conservation, or watershed organization?

Current Member of Environmental, Conservation, or Watershed Org.	
	Percentage
No	82.9
Yes	17.1

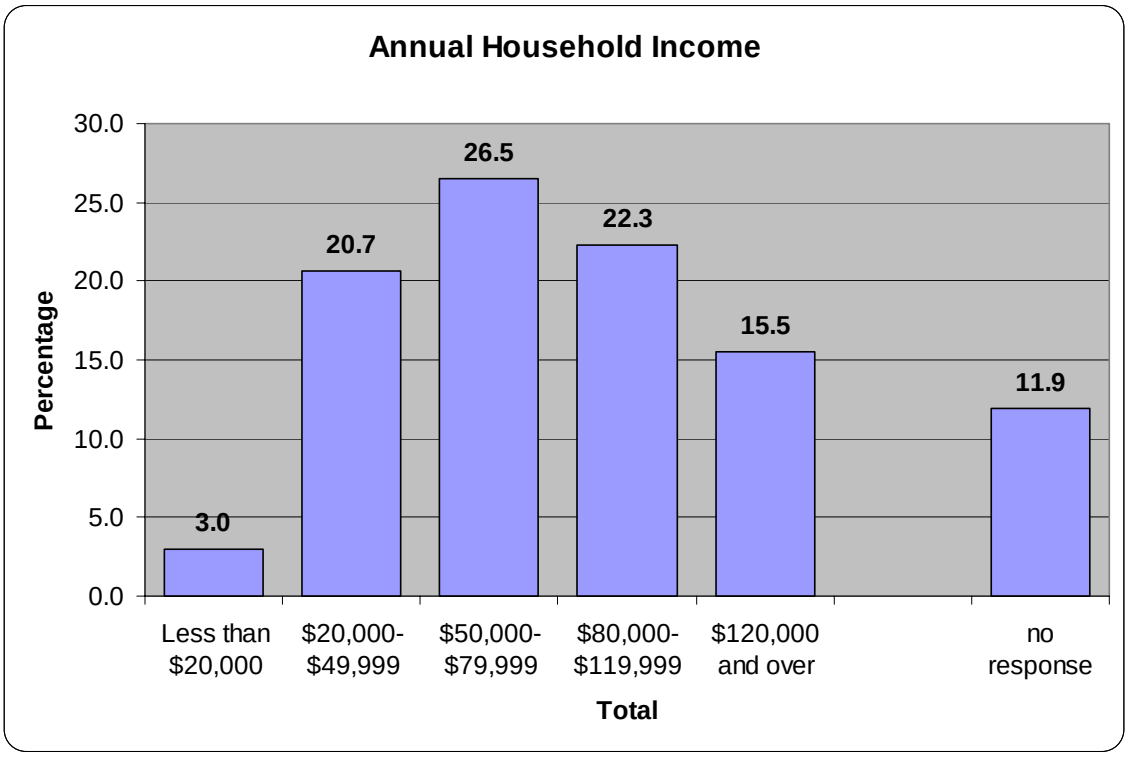
18. What is your age?



19. What is your gender?



20. Please select the range which best describes your total annual household income:



21. What is the highest level of education you have completed?

Highest Level of Education Completed	
	Percentage
4-year College Degree	22.0
Graduate/Professional Degree	18.6
Some College	14.0
High School Degree	11.3
Some Post-Graduate Courses	11.0
Some Vocational Training	7.3
2-year Associate Degree	6.1
Ph.D. Degree	4.9
Some High School	0.3
No response	4.6

22. What is the name of the lake, stream, or river that is closest to your residence?

Name of Lake, Stream, or River Closest to Residence	
	Percentage
Lake Mendota	32.3
Lake Monona	13.7
Lake Wingra	7.6
Yahara River	7.6
Token Creek	5.2
Pheasant Branch Creek	3.3
Six Mile Creek	3.3
Lake Waubesa	2.4
Starkweather Creek	1.8
Sugar River	1.5

23. What is the approximate distance from your residence to that closest lake, stream, or river?

Distance from Residence to Closest Lake, Stream, or River	
	Percentage
My residence is adjacent to a lake, stream, or river	7.9
Within ¼ mile (about 3 city blocks)	20.7
Between ¼ mile and 1 mile	27.7
More than 1 mile	35.4
I don't know	5.5

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

Use of Water Resources In and Around Your Community	
	Percentage
Scenic appreciation	70.7
Walking, jogging, birding, or similar uses	50.0
Fishing	25.3
Swimming	23.5
Motorized boating	21.0
Non-motorized boating or sailing	18.3
Ice-skating or winter sports	17.1
Hunting	2.7
None of the above	11.6

Appendix D

2009 Your Views On Local Water Resources Survey

Findings and Data Displays

Prepared for the Madison Area
Municipal Storm Water Partnership

By Jacob Blasczyk, Ed.D. Evaluation Specialist
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December 28, 2009

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Madison, WI 53703

Presented here are summaries of findings along with data from the 2009 "Your Views on Local Water" survey, organized according to the four sections of the survey. A summary of findings for each section is followed by data displays for each question. The appendix supports the report tilted "*Trends in Storm Water-Related Perceptions, Knowledge and Practices: Plus Implications For Education Outreach*". The report was the result of a study commissioned by the Madison Area Municipal Storm Water Partnership (MAMSWaP). The Partnership consists of nineteen municipalities, Dane County and UW Madison who jointly apply for and implement a municipal storm water discharge permit from the Wisconsin Department of Natural Resources (WDNR). See the full report for further information about MAMSWaP.

Perceptions of Local Water Resources

Summary: Respondents rated the water quality of lakes, rivers and streams located in the boundaries of MAMSWap, as well as water bodies within their local community. They also identified contributors to runoff problems and reported how aware they were about current local government efforts to improve water quality.

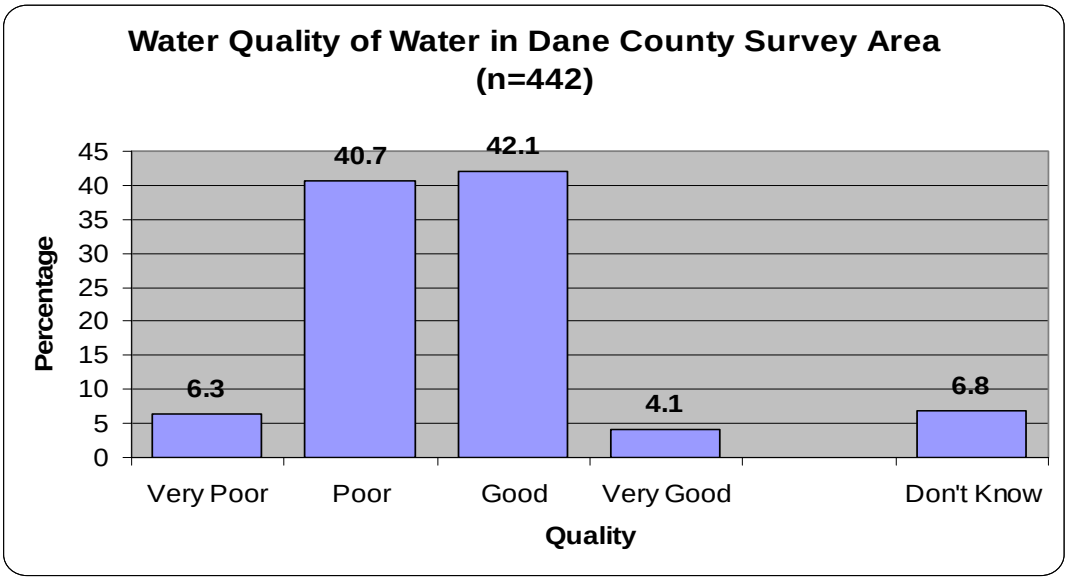
Regarding water quality in the service area represented in the map on the front of the survey, respondents were split; about half rated water quality as "poor" or "very poor" while the other half said "good" or "very good". When rating water quality in and around their communities, respondents were somewhat more likely to assign a rating of "good" or "very good".

Agricultural fertilizers and pesticides were thought to be the major contributor to water quality problems in the respondents' communities. The largest number of respondents identified storm water runoff being a major contributor to weed and algae growths in lakes in their communities.

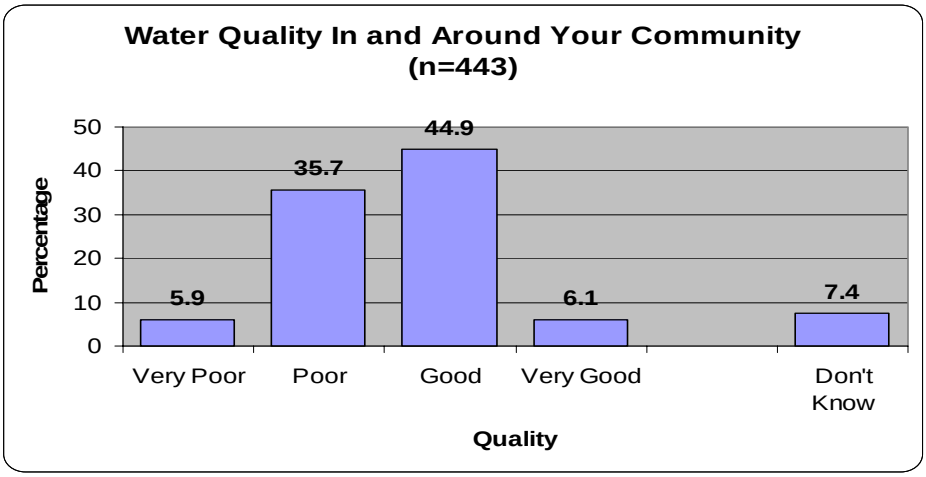
As runoff leaves property, most believed it travels into a storm drain system such as curbs, street-gutters, and storm drains. As runoff leaves the neighborhood, many believed it travels to a creek, stream, river, or lake, without treatment.

Many thought local government activities to improve water quality were taking place but they didn't know much about them.

1. In general, how would you rate the water quality of the lakes, rivers, and streams located in the <u>area on the map</u> printed on the front cover?



2. In general, how would you rate the water quality of the lakes, rivers, and streams located in and around your community?



3. To what extent do you believe each of the following items contributes to water quality problems for the lakes, rivers, and streams in and around <u>your community</u>?

Contributors to Water Quality Problems in Your Community					
	Major	**Moderate**	**Minor**	**Does Not**	**Don't Know**
Agricultural fertilizers and pesticides	45.7	31.1	14.9	1.8	6.5
Stormwater runoff from streets & highways	43.4	39.1	12.7	0.5	4.3
Lawn/urban fertilizers and pesticides	40.1	35.8	17.1	2.5	4.5
Manure from farm animals	35.6	34.9	18.0	4.5	7.0
Street salt and sand	27.3	45.5	20.7	2.0	4.5
Soil erosion from farm fields	25.3	33.5	29.0	4.5	7.7
Stormwater runoff from non-residential rooftops & parking lots	23.1	35.4	31.7	2.5	7.3
Stormwater runoff from residential rooftops & driveways	19.3	33.1	36.7	4.5	6.3
Discharges from industry	17.4	33.6	32.4	4.8	11.9
Discharges from sewage treatment plants	11.9	19.5	35.0	14.2	19.5
Soil erosion from construction sites	11.7	34.1	39.3	5.9	9.0
Grass clippings and leaves	11.7	31.5	42.3	8.3	6.1
Improper disposal of hazardous household wastes	10.4	27.6	42.3	6.8	12.9
Air pollution from industrial activities	9.5	27.3	41.1	10.5	11.6
Improper disposal of motor oil & antifreeze	7.7	20.7	46.8	6.8	18.0
Pet waste	5.7	15.1	52.1	14.6	12.6

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

Where Does Runoff Go as it Leaves Property?		
	Frequency	**Percentage**
Into a storm drain system (curbs, street-gutters, and storm drains)	328	73.7%
Into a ditch drainage system	90	20.2%
Other	40	8.9%
It does not leave my property	32	7.2%
I don't know	4	0.9%

** Percentages do not equal 100 due to respondents being able to check multiple locations

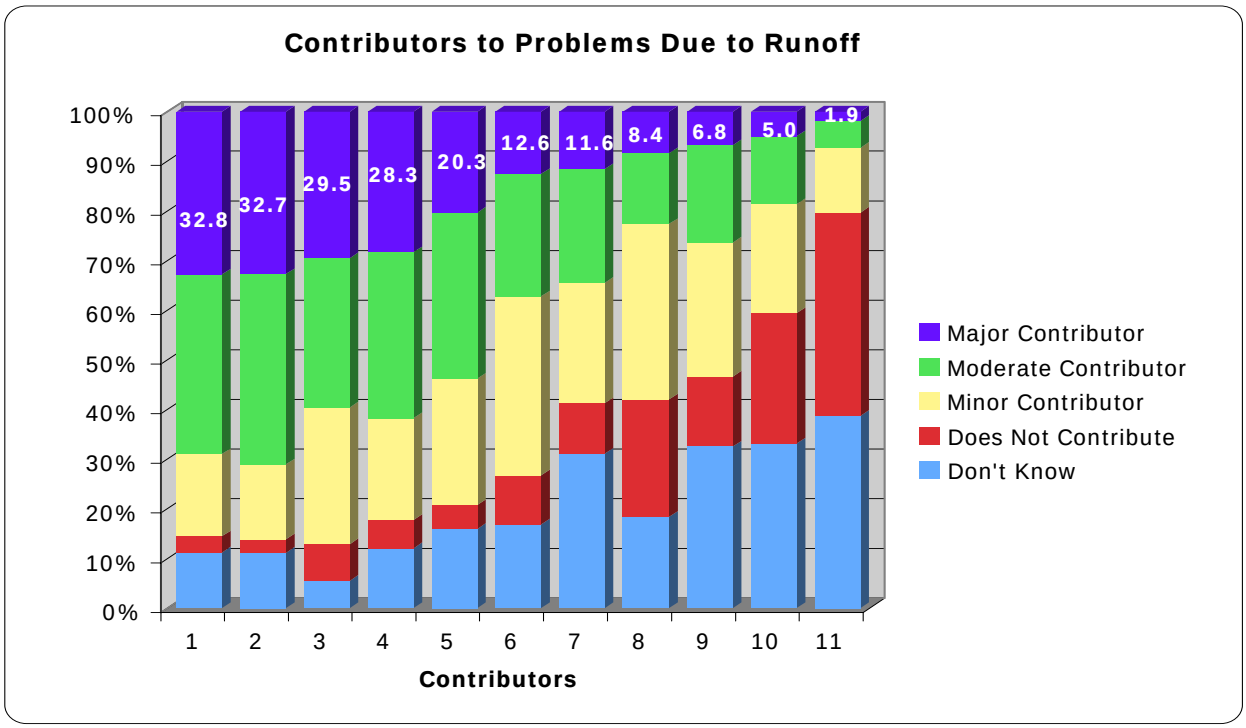
5. Where does stormwater runoff go once it leaves your neighborhood? (Please select all that apply)

Where Does Runoff Go as it Leaves Neighborhood?		
	Frequency	**Percentage**
To a creek, stream, river, or lake, without treatment	252	56.6%
I'm not sure where the water goes	88	19.7%
To a municipal sewage treatment system	67	15.0%
To a holding pond	57	12.8%
To a field or infiltration basin	48	10.8%

** Percentages do not equal 100 due to respondents being able to check multiple locations

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 the community?

"Major Contributors" to Problems in Community Due to Runoff		
	Frequency	**Percentage**
Weed and algae growth in lakes	144	32.8%
Delivery of sediment to local lakes and streams	145	32.7%
Flooding	129	29.5%
Negative impacts on local swimming and beach areas	125	28.3%
Negative impacts on fish habitat	89	20.3%
Negative impacts on habitat for wildlife	55	12.6%
Increased temperatures in lakes and streams	51	11.6%
The quality of local drinking water	37	8.4%
Reduction in normal flow of local streams when it's not raining	30	6.8%
Lowering groundwater levels	22	5.0%
Increased numbers of zebra mussels	8	1.9%



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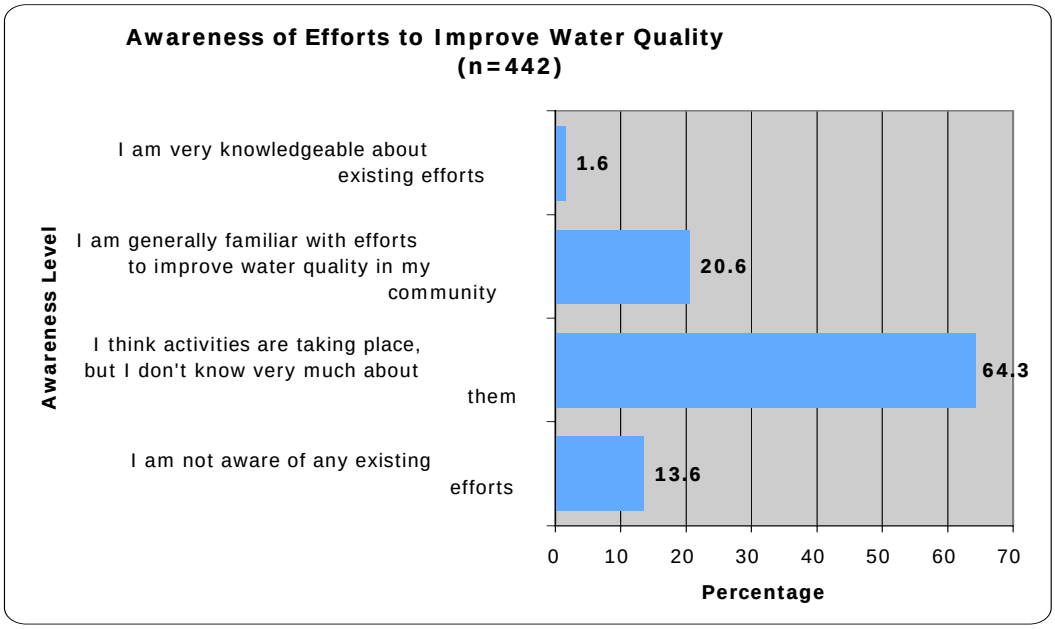
1. Weed and algae growth in lakes
2. Delivery of sediment to local lakes and streams
3. Flooding
4. Negative impacts on local swimming/beach areas
5. Negative impacts on fish habitat
6. Negative impacts on habitat for wildlife
7. Increased temperatures in lakes and streams
8. The quality of local drinking water
9. Reduction in normal flow of local streams. when it's not raining
10. Lowering groundwater levels
11. Increased numbers of zebra mussels

Contributors to Problems Due to Runoff					
	Major	Moderate	Minor	Does Not	Don't know
Weed and algae growth in lakes	32.8	36.2	16.6	3.2	11.2
Delivery of sediment to local lakes and streams	32.7	38.4	15.1	2.7	11.1
Flooding	29.5	30.1	27.6	7.3	5.5
Negative impacts on local swimming/beach areas	28.3	33.5	20.6	5.7	12.0
Negative impacts on fish habitat	20.3	33.5	25.5	4.8	15.9
Negative impacts on habitat for wildlife	12.6	24.6	36.1	9.9	16.8
Increased temperatures in lakes and streams	11.6	22.9	24.3	10.2	31.1
The quality of local drinking water	8.4	14.2	35.4	23.7	18.3
The reduction of normal flow of local streams when it's not raining	6.8	19.5	27.0	14.1	32.5
Lowering groundwater levels	5.0	13.6	22.0	26.3	33.1
Increased number of zebra muscles	1.9	5.4	13.0	41.0	38.7

7. Which of the following statements best describes your level of awareness about current efforts by your local government to improve water quality in your community?



Practices, Concerns and Efforts

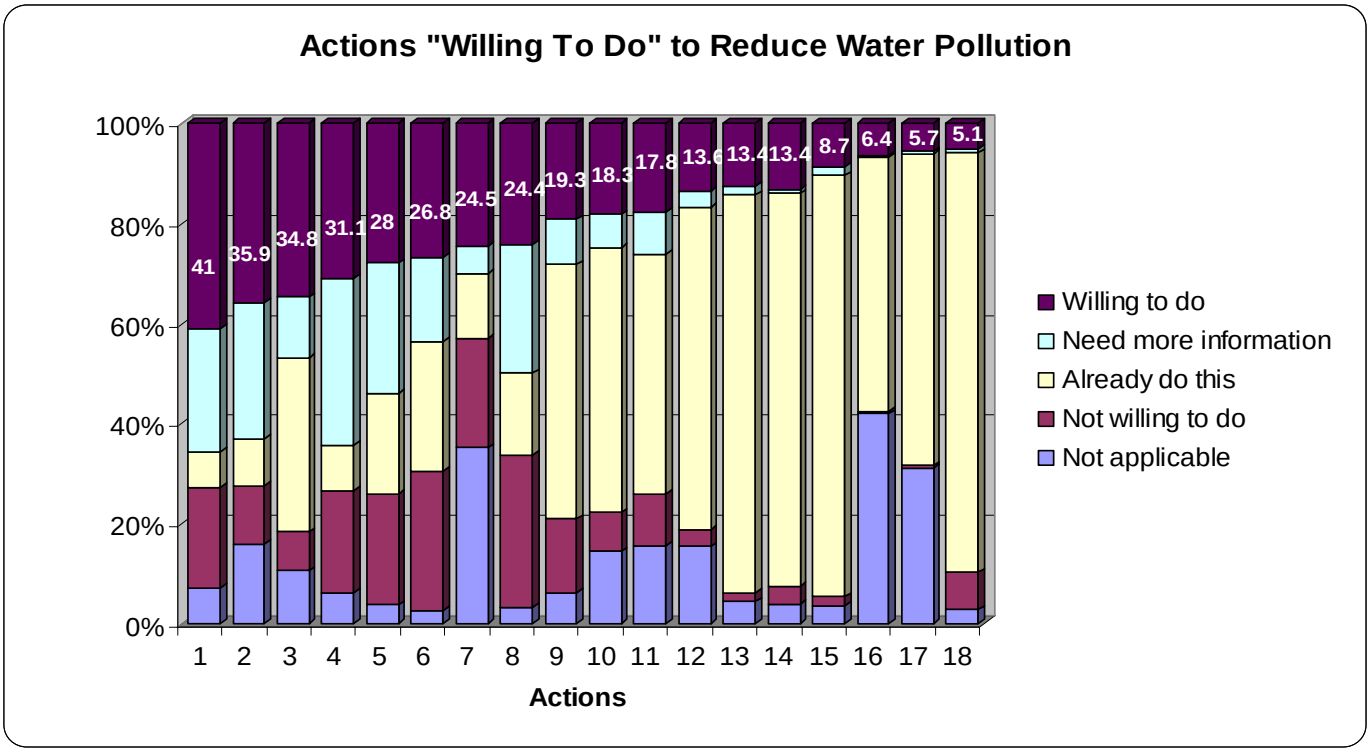
Summary: Data were collected on the willingness to do (or having done) 18 practices to reduce water pollution. The two most frequently selected practices respondents were willing to do were install a rain barrel or cistern and conduct soil tests to determine fertilizer application rates for their lawns, followed closely by compost leaves and grass clippings through a community program.

Respondents were also asked to select from those that they were unwilling to do any that they considered most challenging and tell why. These varied from age to characteristics of the property that prevented using the practice. Except for cost, challenges seemed to be specific to each practice rather than pertain to most practices.

Respondents also rated the effectiveness of nine types of efforts for addressing storm water problems in their local community. Close to a majority identified restoring wetlands as being “very effective”, followed by slightly more than a third who gave the same rating to conducting soil tests to determine lawn fertilizer application. Another third also considered composting through a community program as being “very effective”.

8. Which of the following practices would you do (or have done for you) on a regular basis if you knew that the action would help reduce water pollution? Are you already doing any?

Percentage of Actions to Reduce Water Pollution					
	Willing to do	**Need more info**	**Already do this**	**Not willing to do**	**N/A**
Install a rain barrel or cistern to collect rainwater from your downspouts	41.0	24.7	7.1	20.1	7.1
Conduct soil tests to determine fertilizer application rates for lawn	35.9	27.2	9.4	11.5	15.9
Compost leaves and grass clippings through a community program	34.8	12.1	34.8	7.8	10.5
Install a “rain garden” to intercept rainwater from your downspouts	31.1	33.4	8.9	20.4	6.2
Stop using chemical fertilizers completely	28.0	25.9	20.1	22.2	3.7
Stop using salt to melt ice at your residence	26.8	16.9	25.9	27.7	2.7
Wash your car on your lawn	24.5	5.5	13.1	21.8	35.1
Stop using weed-killers completely	24.4	25.6	16.4	30.4	3.2
Compost leaves and grass clippings in your yard	19.3	9.0	50.8	14.7	6.2
Apply weed-killers only once or twice a year	18.3	6.6	53.0	7.8	14.4
Apply chemical fertilizers once or twice per year	17.8	8.5	47.8	10.3	15.6
Keep street gutters in front of your residence clear of grass clippings and leaves	13.6	3.2	64.4	3.4	15.4
Use a mulching lawnmower	13.4	3.4	74.3	4.3	4.6
Wash your car at a car wash	13.4	0.7	78.5	3.5	3.9
Direct your rain downspouts to your lawn rather than your driveway	8.7	1.8	84.1	1.8	3.6
Clean up and dispose of pet waste	6.4	0.5	50.7	0.5	42.0
Take used automotive oil to a recycling center	5.7	0.5	62.4	0.5	31.1
Have your oil changed at an automotive service center	5.1	0.9	83.9	7.4	2.8



1. Install a rain barrel or cistern to collect rainwater from your downspouts
2. Conduct soil tests to determine fertilizer application rates for your lawn
3. Compost leaves and grass clippings through a community program
4. Install a "rain garden" to intercept rainwater from your downspouts
5. Stop using chemical fertilizers completely
6. Stop using salt to melt ice at your residence
7. Wash your car on your lawn
8. Stop using weed-killers completely
9. Compost leaves and grass clippings in your yard
10. Apply weed-killers only once or twice a year
11. Apply chemical fertilizers once or twice per year
12. Keep street gutters in front of your residence clear of grass clippings and leaves
13. Use a mulching lawnmower
14. Wash your car at a car wash
15. Direct rain downspouts to your lawn rather than your driveway
16. Clean up and dispose of pet waste
17. Take use automotive oil to a recycling center
18. Have your oil changed at an automotive service center

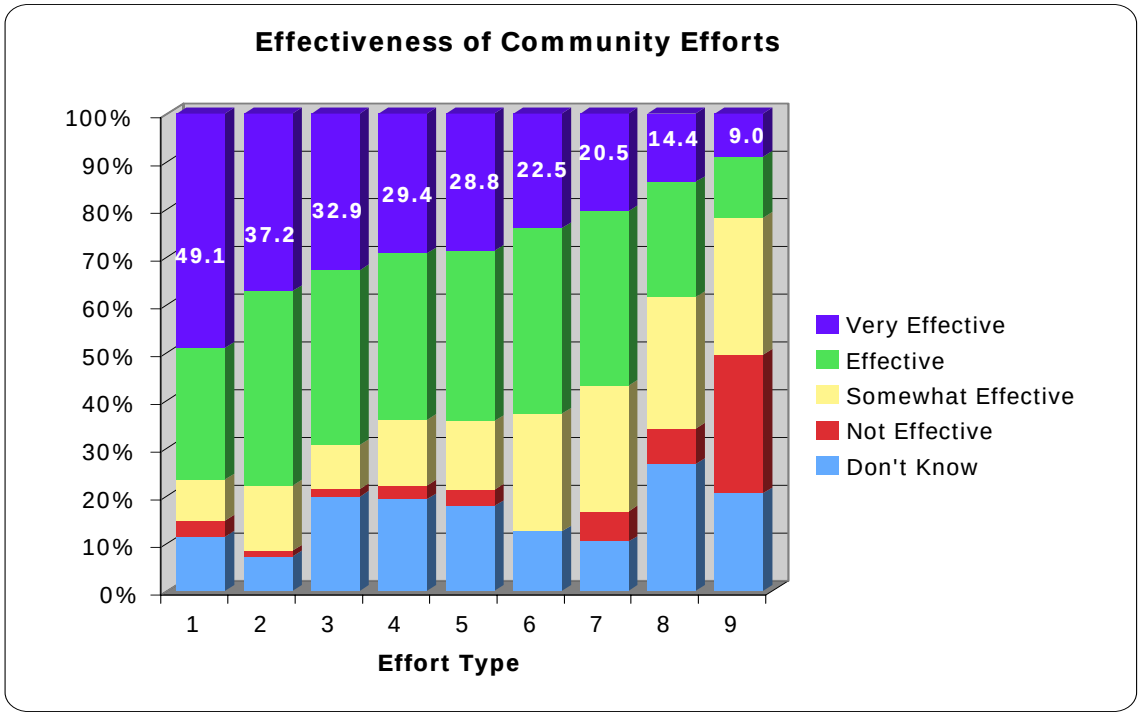
9. Please review practices you checked as "not willing to do" in Question 8. Are there any that would be very challenging for you to do? If yes, please identify practices and then explain why these would be challenging.

Are Practices "Not Willing To Do" Very Challenging? (n=377)		
	No	**Yes**
Frequency	214	163
Percentage	56.8%	43.2%

Reported Challenges to Doing Practices That Help Reduce Water Pollution	
Practices Cited	**Challenges Mentioned**
Take used automotive oil to a recycling center	• Too far away • Difficult to use • Too much extra work, age • Cost
Have your oil changed at an automotive service center	• Cost (2) • Damage to car
Conduct soil tests to determine lawn fertilizer application	• Cost
Stop using chemical fertilizers completely	• Want green lawn (7) • Need to control weeds (6) • Not major issue
Stop using weed-killers completely	• Want green lawn (7) • Need to control weeds (5) • Need natural alternative (2)
Stop using salt to melt ice at your residence	• Driveway is steep (12) • Safety (12) • Sand ineffective (4) • Unwilling to stop, age (4) • Fear of being sued (3) • By law need sidewalk cleared (3) • Need alternative (2)
Compost leaves and grass clippings in yard	• Quantity of leaves too great (2) • Cost • Yard too small • Age • Inconvenient • Deed restrictions • Don't want one
Install a rain barrel or cistern to collect rainwater from your downspouts	• Habitat for mosquitoes (4) • Cost (4) • Don't want one (2) • Not enough room in yard (2) • Unsightly • Storage on property infeasible • Cannot install with amount of downspouts • Useless • Inconvenient
Wash your car on your lawn	• No room on lawn (8) • Damage to lawn (5)
Wash your car at a car wash	• Cost

10. In your opinion, if implemented, how effective are the following types of efforts for addressing stormwater problems in your community?

Percent Effectiveness of Community Efforts					
	Very Effective	**Effective**	**Somewhat Effective**	**Not Effective**	**Don't Know**
Restoring wetlands	49.1	27.5	8.6	3.4	11.4
Leaf and yard waste collection	37.2	40.7	13.7	1.2	7.2
Developing facilities where stormwater can seep into the ground (referred to "infiltration" facilities)	32.9	36.6	9.2	1.6	19.8
Developing buffers along waterway & shorelands	29.4	34.9	13.8	2.8	19.3
Enforcing local erosion and stormwater ordinances	28.8	35.6	14.4	3.4	17.8
Street sweeping	22.5	36.3	23.0	0.0	11.7
Reducing salt usage for melting ice	20.5	36.5	26.3	6.4	10.3
Installing rain gardens	14.4	24.2	27.6	7.4	26.7
Painting stenciled messages on streets/drains	9.0	12.9	28.7	29.0	20.5



** 1. Restoring wetlands
2. Leaf and yard waste collection
3. Developing facilities where stormwater can seep into the ground (referred to as "infiltration" facilities)
4. Developing buffers along waterways & shorelands
5. Enforcing local erosion & stormwater ordinances
6. Street sweeping
7. Reducing salt usage for melting ice
8. Installing rain gardens
9. Painting stenciled messages on streets/drains

Information Sources

Summary: The survey collected data about respondents' sources of information on matters related to storm water runoff and practices. In the event of a problem related to storm water, respondents were most likely to contact their municipal government.

The most common source used to obtain information on the effects of runoff was local weekly or daily print newspapers. Relatively few respondents attended a workshop or class to learn about the effects of runoff or attended a public meeting about the topic. Specifically, about eight percent of respondents had previously received information from a class or workshop they had attended in the last two years. Another eight percent had received information from attending a public meeting.

Search engines were used twice as often each day than any other survey listed internet source. About a third daily used specific bookmarked sites and slightly less than a third daily used electronic newspapers. Other internet sources such as Facebook or MySpace, listservs, blogs, electronic magazines, pod casts, and YouTube were used infrequently on a daily basis.

Slightly less than three percent had ever used the WEB site myfairlakes.com.

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

Contact for Stormwater Related Problems (n=446)		
	Frequency	**Percentage**
Your municipal government	231	51.7%
I wouldn't know who to contact	106	23.7%
Your water utility	92	20.6%
Wisconsin DNR	80	17.9%
I most likely wouldn't contact anyone	40	8.9%
Dane County government	33	7.3%
Environmental, conservation, or watershed org.	25	5.6%
Other	15	3.3%

*Percentages will not add up to 100% due to respondents checking multiple contacts.

12. During the last two years, how many classes and/or workshops have you attended to learn about effects of runoff from rain and melting snow or practices mentioned in this survey?

Classes/Workshops Attended in Last Two Years (n=443)					
	None	**1**	**2**	**3**	**4 or more**
Frequency	408	28	5	0	2
Percentage	92.1%	6.3%	1.1%	0%	0.5%

13. During the last two years, have you attended any public meetings or events about effects of runoff from rain and melting snow or practices mentioned in this survey?

Public Meetings Attended in Last Two Years (n=445)		
	Frequency	**Percentage**
No	408	91.7%
Yes	37	8.3%

14. Have you ever learned about effects of runoff from rain or melting snow or practices mentioned in this survey from any of the following? (Check all that you have used)

Sources Respondents Learned From (n=445)		
	Frequency	**Percentage**
Local weekly or daily print newspapers	261	58.6%
Television or radio ads or programs	190	42.6%
Community newsletters	170	38.2%
Internet Sources	100	22.4%
Printed information from a university or governmental agency	91	20.4%
Displays at meetings, exhibitions and shows	61	13.7%

*Percentages will not add up to 100% due to respondents checking multiple sources.

15. Approximately how frequently, if at all, do you use each of the following internet sources?

Use of Internet Sources (n=446)					
	Never	**Rarely**	**Monthly**	**Weekly**	**Daily**
Search engines	13.1%	4.4%	3.5%	18.0%	61.1%
Specific bookmarked sites	32.4%	7.3%	8.7%	18.3%	33.3%
Electronic newspapers	23.6%	19.9%	6.2%	18.3%	31.9%
Facebook, MySpace, etc.	63.4%	14.3%	4.7%	8.2%	9.4%
Listservs	72.1%	14.7%	3.8%	2.6%	6.9%
Blogs	57.5%	25.0%	4.9%	6.8%	5.8%
Electronic magazines	50.0%	25.5%	11.0%	9.6%	4.0%
Pod casts	69.0%	20.7%	4.5%	2.6%	3.3%
YouTube	42.5%	25.0%	12.9%	16.4%	3.3%

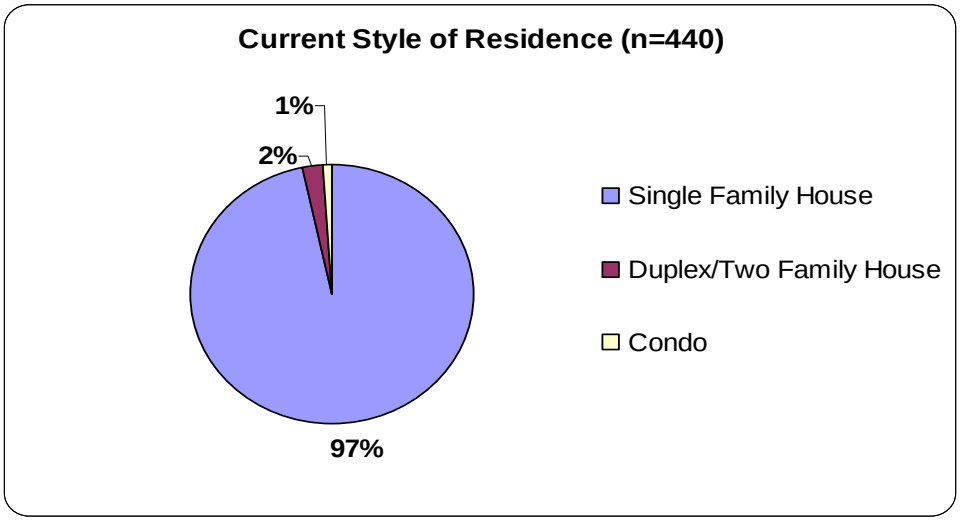
16. Have you ever used the web site myfairlakes.com?

Respondents' use of myfairlakes.com (n=440)		
	Frequency	**Percentage**
No	428	97.3%
Yes	12	2.7%

Information and Respondents and Their Residence

Summary: The majority of respondents were males between the age of 45 and 64, living in a single family house. Most received a 4-year college degree as their highest level of education and were grossing $80,000 or more in annual household income. A majority are not members of environmental, conservation, or watershed organizations. Scenic appreciation was found to be the most common use of water resources around the community for these respondents.

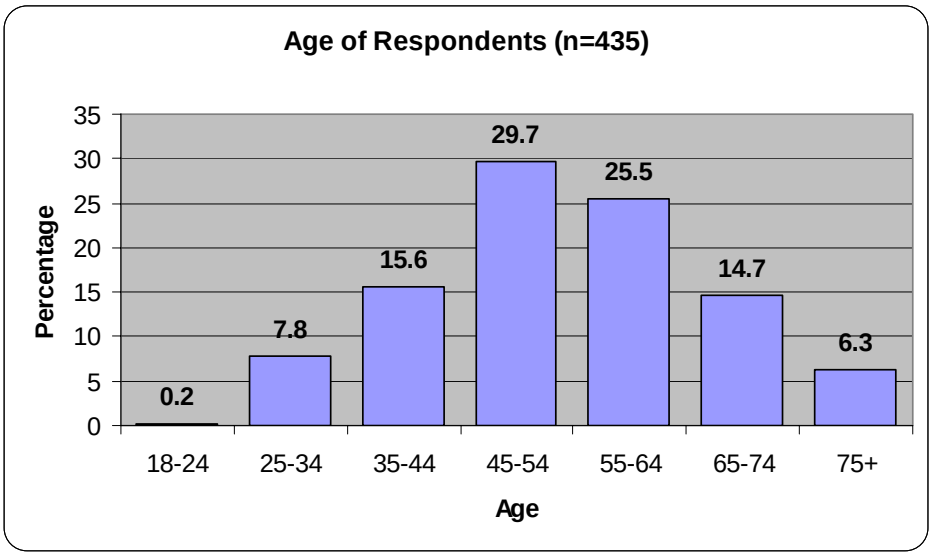
17. Which of the following best describes your current residence?



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

Organization Members (n=442)		
	Frequency	Percentage
No	362	82%
Yes	80	18%

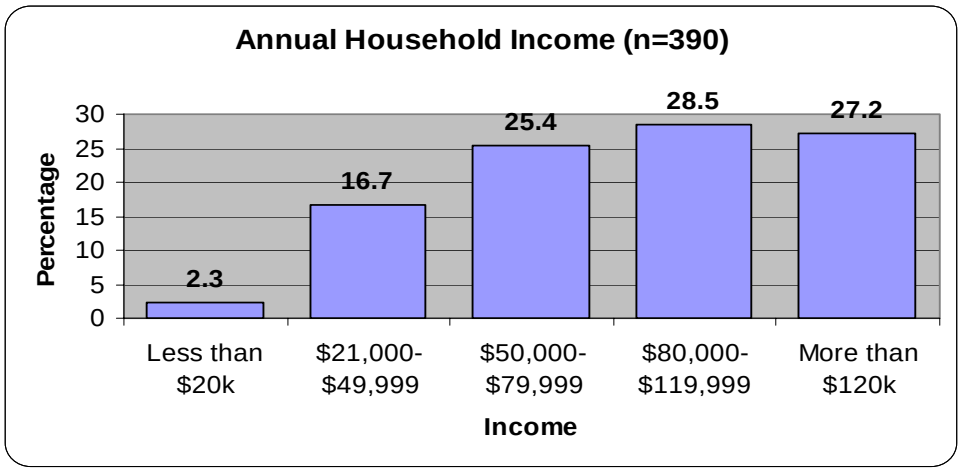
19. What is your age?



20. What is your gender?

Gender of Respondents (n=437)		
	Frequency	Percentage
Male	350	80%
Female	87	20%

21. Please select the range which best describes your total annual household income.



22. What is the highest level of education you have completed?

Respondent Education Level (n=442)		
	Frequency	Percentage
4-year college degree	114	25.8%
Graduate/Professional degree	94	21.3%
Some college	56	12.7%
High school diploma	49	11.1%
2-year associate degree	34	7.7%
Some post-graduate courses	33	7.5%
PhD degree	30	6.8%
Some vocational training	24	5.4%
Some high school	8	1.8%

23. During the last calendar year, in which of the following ways have you used the water resources in and around your community? (Select all that apply)

Community Water Usage (n=445)		
	Frequency	**Percentage**
Scenic appreciation	323	72.6%
Walking, jogging, birding, or similar uses	279	62.7%
Fishing	148	33.3%
Swimming	135	30.3%
Motorized boating	135	30.3%
Non-motorized boating or sailing	105	23.6%
Ice-skating or winter sports	93	20.9%
Hunting	51	11.5%
None of the above	40	9.0%