

Introduction

As part of the WaterWorks! commitment, a baseline telephone survey of adult residents of Tennessee was conducted in 2003 regarding perceptions of water quality across the state and household habits pertaining to the disposal methods of potential pollutants. Additionally, respondents were asked about their knowledge of nonpoint source pollution and preferences for the financing of water quality improvement. The survey was conducted using the Random Digit Dialing method. A total of 871 randomly-selected adult residents of Tennessee were interviewed with a resulting +/- 3.3% margin of error. The cooperation rate for the survey was 35.9%.

Trained personnel from the Social Science Research Institute at the University of Tennessee, Knoxville, using a Computer-Assisted Telephone Interviewing (CATI) System, conducted all interviews. The survey was designed and analyzed by Dr. Michael M. Gant, Director, Social Science Research Institute and Linda M. Daugherty, Program Director, Social Science Research Institute for the WaterWorks! Program at the Center for Environmental Education, Middle Tennessee State University. This project is funded, in part, under an agreement with the Tennessee Department of Agriculture, Nonpoint Source Program and the U.S. Environmental Protection Agency, Assistance Agreement #C9994674-02-0.

See Appendix B for sample survey form.

Narrative Summary

Water Quality

Statewide, respondents are satisfied with the water quality of rivers/streams in their area, with less than one-fifth rating such quality 'poor' or 'very poor'. Conversely, less than five percent rated rivers/streams water quality as 'excellent'. There are no appreciable differences on this variable between the Grand Divisions of Tennessee. With respect to place of residence, the only notable difference is the tendency of residents of medium-sized cities to rate rivers/streams as 'fair' rather than 'good'.

Turning to the demographic variables, the most noticeable differences are between income groupings. Specifically, the lowest income group is the most likely to rate rivers/streams quality as 'very poor' or 'poor', and the least likely to rate such quality as 'good' or 'excellent'. The highest income group displays just the opposite pattern.

Drinking Water

These data indicate that, statewide, respondents are quite satisfied with the quality of drinking water. Less than 15% rated their drinking water as 'poor' or 'very poor', while about 60% rated their water as 'good' or 'excellent'. West Tennesseans are much more

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likely than residents of other parts of the state to rate their water as 'excellent'. Rural residents are the least likely to judge the water supply as 'good' or 'excellent'. Those with less than and a high school education, and those age 18-25, are most likely to rate drinking water as 'very poor' or 'poor', and least likely to rate the water supply as 'good' or 'excellent'. Respondents with advanced degrees, and those in the oldest age cohort, are least likely to rate the water supply as 'very poor' or 'poor', and most likely to rate it as 'good' or 'excellent'.

Lawn Clipping Disposal

Across the state, the most common methods of disposing of lawn clippings are mulching and spraying clippings back into the lawn. Hardly any of the respondents said they sprayed clippings down a drain. Middle Tennesseans are most likely to report spraying clippings back into the yard, while mulching is preferred by East Tennesseans. Residents of West Tennessee are far more likely to report disposing of clippings with other garbage. Not surprisingly, residents of rural areas are by far the most likely to mulch, while urban dwellers prefer spraying the clippings back into the yard. With respect to the demographic variables, those in the lowest education group are the most likely to report disposing of lawn clippings in the garbage or in the yard, and least likely to use clippings as mulch. Further, the tendency to use clippings as mulch increases as income increases. Finally, African Americans are much more likely to report disposing of clippings through the garbage, while whites tend either to mulch clippings, or dispose of them in the yard.

Fertilizer and Pesticides

About three-fourths of Tennesseans report they do not test their lawns with respect to fertilizers or pesticides. West Tennesseans are more likely to report such testing. The large proportion of residents of medium-sized cities who reported 'not sure' most likely did so because almost half of these residents live in apartments. Among the demographic differences of note, the tendency to test increases as education increases; further, the highest income group is by far the most likely to report lawn testing. Finally, African Americans are more likely than whites to test their lawns.

About 25% of respondents report fertilizing their lawn at least quarterly, while 40% say they never fertilize. West Tennesseans report the highest frequency of fertilizing. Almost two-thirds of residents of rural areas report never fertilizing their lawns. Those with less than a high school education are the most likely to report never using fertilizer or pesticides, while the likelihood of reporting that fertilizers or pesticides are never used decreases as income increases. Finally, African Americans apply lawn chemicals more frequently than do whites.

Car Washing

Among those who reported washing their car at home, either exclusively or in conjunction with a car wash, over 75% say the waste water flows into a yard or grassy area, not a drain. West Tennesseans were the most likely to report waste water flowing into a drain.

With respect to location of residence, rural residents are much more likely to report such water flowing into a yard than are urban residents, while residents of medium-sized cities are the least likely to report such a drainage method. Those with less than a high school diploma are most likely to use the yard, and least likely to use a drain, for runoff. Older respondents, whites, and males are also more likely to report allowing runoff to a yard or grassy area.

Oil Changes

Over 80% of all respondents report having their oil changed at a service center, rather than doing it themselves at home. The only exception to this occurs among rural residents, over one-fourth of whom report changing their own oil. Respondents with less education and lower incomes, as well as younger respondents, are less likely to use a service center for oil changes. Slight differences are also observed between African Americans and whites, and between males and females.

Among those who do change their own oil, the vast majority report disposing of used motor oil by recycling, and only a small fraction report disposing of used oil in their yard. Respondents with less than a high school diploma, and who earn less than \$12,500 annually, are least likely to use a recycling center for oil disposal. White respondents and males are also more likely to report recycling used oil.

Home Cleaning Products

There is substantial uncertainty among Tennesseans with respect to the status of home cleaning products; over one-fourth are not sure whether these products are biodegradable. However, of those who could answer this question, most report that some or all of these materials are biodegradable. Residents of rural areas, and of West Tennessee, as well as lower-income, older, African American, and female respondents, are most likely to report that all of their cleaning products are biodegradable. With respect to uncertainty, respondents in the lowest education and income strata are more likely to report not being sure whether their cleaning products are biodegradable.

Among respondents who did not know whether their cleaning products were biodegradable, or who reported these products were not, about two-thirds say they would use environmentally safe cleaning products, even if they were more costly. Between 20%-25% said it would depend on how much more these materials would cost. Only about one-in-ten said they would not switch to safer products if they had to pay more. Residents of medium-sized cities were the most likely to respond 'no' to this question, and least likely to say it depends on the price difference.

Willingness to pay more for biodegradable products increases as does the level of education. Respondents with annual incomes of less than \$12,500 would be least likely to purchase such products, as would those over age 65. No appreciable differences are apparent with respect to race or gender.

Sewers/Septic Tanks

Tennesseans are slightly more likely to rely on sewers over septic tanks for waste disposal. West Tennesseans are substantially more likely to use sewers, while a majority of East Tennesseans use septic tanks. Not surprisingly, septic systems predominate in rural areas, while sewers are more common in urban areas. However, residents of medium-sized cities are far more likely than big city dwellers to report reliance on sewers. Reported reliance on sewer systems also increases with education and income. African American respondents are far more likely than whites to rely on sewer systems.

Source of Water

Utility companies are clearly the predominant source of water for Tennesseans, across all categories of place of residence. The only deviation from this statement is found among residents of rural areas, who are more likely than any other group to report reliance on well water. However, even here about 63% report getting water from a utility company. Reliance on a utility company for home water supplies increases as do both formal education and annual income. African Americans are also more likely to rely on a utility company for water, compared to white respondents.

Water Pollution

At least three-fourths of Tennesseans, regardless of where they live, believe that people engaged in everyday activities are the primary source of water pollution. Rural Tennesseans are slightly more likely to affirm this belief. However, the tendency to disagree with this statement increases with education, income and age.

Moreover, at least 80% of Tennesseans believe that even small changes in daily life activities can positively impact water pollution levels. This tendency is also a function of education and income. However, the likelihood of disagreeing with this statement decreases as age increases. No appreciable differences were found on either variable between African Americans and whites, and between men and women.

Pet Waste

About one-half of all respondents believe that household pet waste is a significant source of water pollution, regardless of where they live. West Tennesseans and rural residents were most likely to concur in this assessment. Respondents with low annual incomes were more likely to view pet wastes as a problem, while those with the highest incomes were least likely to do so. African American and female respondents were more likely to view pet wastes as a problem.

Droppings from wild birds are seen to be an even more important source of water pollution, again regardless of residence. This tendency is slightly stronger among those with no college education, as well as among our older respondents. Women were substantially more likely than men to perceive wild bird wastes as a significant source of pollution.

Nonpoint Source Pollution

Tennesseans are overwhelmingly unfamiliar with the term “Nonpoint source pollution,” regardless of residence. The only notable difference on the demographic variables is that men are more likely than women to express familiarity with the term.

Once the term is explained, respondents are in surprising agreement with respect to the important sources of nonpoint source pollution. Specifically, runoff from agricultural chemicals are seen as the most important source, followed by automobile fluid runoff, construction runoff, and lawn chemicals. These trends are consistent across all categories of residence. Respondents with higher levels of education, and higher incomes, are more likely to view agricultural runoff as the most important source, as are white respondents, and men.

Cost to Improve Water Quality

To cover the costs of improving water quality, should it be necessary, Tennesseans would prefer an assessed fee on water use instead of a general tax increase by a two-to-one margin. This pattern holds across all residential groupings. This preference for an assessed fee over a tax increase strengthens with level of education and income.

See Appendix B for survey data.

Appendix A

WATERWORKS! Basic Survey

Hello, my name is _____. I am calling from (title of group or county office). We are calling households in our area to ask a few questions about the quality of water. The survey will take less than ten minutes. Would you be willing to answer a few questions for me?

1. First, how would you rate the overall water quality of rivers and streams in your area? Would you say that it is very poor, poor, fair, good or excellent?

- 1 Very poor
- 2 Poor
- 3 Fair
- 4 Good
- 5 Excellent
- 8 Don't know/not sure
- 9 Refused

2. How would you rate the overall quality of the drinking water in your area? Would you say that it is very poor, poor, fair, good or excellent?

- 1 Very poor
- 2 Poor
- 3 Fair
- 4 Good
- 5 Excellent
- 8 Don't know/not sure
- 9 Refused

Now, I would like to ask you about a few household activities.

3. How do you dispose of grass clippings from your driveway or sidewalks after your lawn is mowed? Are the grass clippings thrown away in the garbage, is a water hose or blower used to spray them into the yard, is a water hose used to spray them into a drain, are the clippings used for mulch, or do you something else with them?

- 1 Throw them in garbage
- 2 Spray them into yard
- 3 Spray them into drain
- 4 Mulch
- 5 Other
- 6 Lawn service is used
- 7 Live in an apartment

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- 8 Don't know/Not sure
- 9 Refused

4. Do you or someone else test the soil on your lawn to determine how often fertilizer or pesticides are needed?

- 1 Yes
- 2 No
- 8 Don't know/Not sure
- 9 Refused

5. How frequently do you or someone else use fertilizer or pesticides on your lawn?

- 1 Monthly
- 2 Two or three times a year
- 3 Once a year
- 4 Never
- 8 Don't know
- 9 Refused

6. Do you normally wash your car or truck at home, or at a car wash?

- 1 Home
- 2 Car wash
- 3 Both
- 8 Don't know
- 9 Refused

6a. IF HOME OR BOTH..... Does the water from washing your car get absorbed into the yard or grassy area or does it flow into a drain?

- 1 Yard
- 2 Drain
- 8 Don't know
- 9 Refused

7. Where do you change the oil for your car or other vehicles? Do you change it at home or do you have it done at a garage or service center?

- 1 Home
- 2 Service Center
- 8 Don't know
- 9 Refused

7a. IF HOME.... How do you dispose of the used oil?

- 1 Throw it in the yard
- 2 Take it to a oil recycling center
- 8 Don't know
- 9 Refused

8. Are the cleaning products used in your home labeled biodegradable?

- 1 Yes – all of them
- 2 Yes – some of them
- 3 No
- 4 Don't know
- 5 Refused

8a. IF OTHER THAN YES....Would you be willing to use cleaning products that are known to be safer for the environment, even if they cost more?

- 1 Yes
- 2 No
- 3 Depends on how much more
- 8 Don't know
- 9 Refused

9. Does your home have sewer or a septic tank?

- 1 Sewer
- 2 Septic Tank
- 3 Both
- 8 Don't know
- 9 Refused

9a. IF SEPTIC TANK OR BOTH.....How often do you have your septic tank pumped?

- 1 More than once a year
- 2 Once a year
- 3 Less than once a year
- 4 Whenever it needs it
- 8 Don't know
- 9 Refused

10. Do you pay a utility company for your water or does your water come from a well?

- 1 Utility
- 2 Well
- 8 Don't know
- 9 Refused

Now I would like to read four statements and I would like for you to tell me whether you think these statements are true or false.

11. Most water pollution comes from everyday activities in our homes, workplaces, and cars.

- 1 True

- 2 False
- 8 Don't know/Not sure
- 9 Refused

12. Small changes in people's daily habits and activities will have no effect on improving water quality.

- 1 True
- 2 False
- 8 Don't know/Not sure
- 9 Refused

13. Pet waste from household pets is not a significant source of water pollution.

- 1 True
- 2 False
- 8 Don't know/Not sure
- 9 Refused

14. Droppings from pigeons and other birds such as ducks and geese can be a significant source of water pollution.

- 1 True
- 2 False
- 8 Don't know/Not sure
- 9 Refused

15. Are you familiar with the term "Nonpoint Source Pollution"?

- 1 YES
- 2 NO
- 8 NOT SURE
- 9 REFUSED

16. Nonpoint source pollution is any kind of water contamination where the source of the pollution is not known or cannot be identified. I am going to read you a short list of possible sources and I would like for you to tell which ONE you think contributes MOST to water pollution in your area.

- 1 RUNOFF FROM AGRICULTURAL FERTILIZERS AND PESTICIDES
- 2 RUNOFF FROM FARM LOTS AND CONFINEMENTS
- 3 RUNOFF FROM CONSTRUCTION SITE AFTER HEAVY RAINS
- 4 AUTOMOBILE OIL AND OTHER FLUIDS DRIPPED ONTO PARKING LOTS
- 5 INSECTICIDES OR PESTICIDES FROM LAWN CARE
- 6 ANIMAL DROPPINGS
- 7 DON'T KNOW
- 8 REFUSED

17. Finally, I would like to ask your opinion about options for improving the quality of water in your area. If you believed that the quality of water in your area was not good, how would you prefer to improve the quality? Would you prefer to pay for cleaner water through an assessed fee or through a tax increase?

- 1 Assessed fee
- 2 Tax Increase
- 3 Neither
- 8 Don't know/Not sure
- 9 Refused

Now I would like to ask you a few questions so that we can compare your answers to those of others. Please remember that all of your answers are completely confidential.

18. Where do you currently live? Do you live in a house, an apartment or duplex, or a mobile home?

- 1 House
- 2 Apartment
- 3 Duplex
- 4 Mobile home

19. Do you rent or own?

- 1 RENT
- 2 OWN
- 9 NOT SURE
- 10 REFUSED

20. Do you live in a large city (over 100,000 people), a small city (between 20,000 and 100,000 people), a town (between 5,000 and 20,000 people) a small town (Fewer than 5,000 people), or in a rural area? [IF RURAL, ASK IF THEY LIVE ON FARM]

- 1 LARGE CITY
- 2 SMALL CITY
- 3 TOWN
- 4 SMALL TOWN
- 5 RURAL NONFARM
- 6 RURAL FARM
- 8 NOT SURE
- 9 REFUSED

21. What is your age? [2 DIGITS] [USE 00 FOR REFUSED]

22. Which of the following best describes your level of education, not a high school graduate, a high school graduate, a college graduate, or a graduate or professional degree?

- 1 NOT HS GRAD

- 2 HS GRAD
- 3 COLLEGE GRADUATE
- 4 GRADUATE/PROFESSIONAL DEGREE
- 8 NOT SURE
- 9 REFUSED

23. What is your marital status? Are you single, married, divorced, or a widow or widower?

- 1 SINGLE
- 2 MARRIED
- 3 DIVORCED
- 4 WIDOW(ER)
- 8 NOT SURE
- 9 REFUSED

24. What is your race? Are you Black or African American, White, Hispanic, Asian or Pacific Islander, or American Indian?

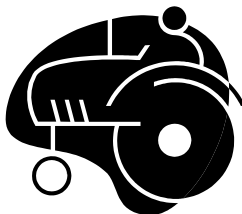
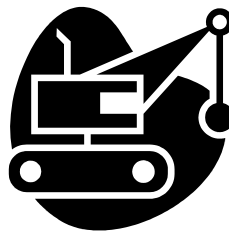
- 1 BLACK
- 2 WHITE
- 3 HISPANIC
- 4 ASIAN
- 5 INDIAN
- 8 NOT SURE
- 9 REFUSED

25. Counting income from all sources, including earnings from all jobs, unemployment insurance, pensions, welfare, and so on, and counting income for everyone living in your home, which of the following ranges did your household income fall into last year? [Read quickly]

- 1 LESS THAN \$12,500
- 2 \$12,501-\$25,000
- 3 \$25,001- \$35,000
- 4 \$35,001- \$50,000
- 5 \$50,001+
- 8 UNSURE
- 9 REFUSED

Appendix B

TENNESSEANS' PERCEPTIONS OF
WATER QUALITY
AND
KNOWLEDGE OF
NONPOINT SOURCE POLLUTION



INTRODUCTION

The Social Science Research Institute at the University of Tennessee, Knoxville, conducted a telephone survey of adult residents of Tennessee regarding perceptions of water quality across the state and household habits pertaining to the disposal methods of potential pollutants. Additionally, respondents were asked about their knowledge of nonpoint source pollution and preferences for the financing of water quality improvement. The survey was conducted using the Random Digit Dialing method. A total of 871 randomly-selected adult residents of Tennessee were interviewed with a resulting +/- 3.3% margin of error. The cooperation rate for the survey was 35.9%.

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Descriptive Characteristics of the Sample

Region of State	WEST TENNESSEE	26%
	MIDDLE TENNESSEE	37%
	EAST TENNESSEE	37%
Race	BLACK	13%
	WHITE	84%
	OTHER	3%
Gender	MALE	36%
	FEMALE	64%
Education	HIGH SCHOOL OR LESS	10%
	SOME COLLEGE	49%
	COLLEGE DEGREE	26%
	GRADUATE/PROF. DEGREE	15%
Income	LESS THAN \$12,500	10%
	\$12,501- \$25,000	17%
	\$25,001 - \$35,000	17%
	\$35,001 - \$50,000	18%
	MORE THAN \$50,00	32%
	NOT SURE/REFUSED	5%
Age	18-25	7%
	26-35	18%
	36-45	21%
	46-55	21%
	56-65	17%
	Over 65	16%
Own/Rent Home	Own	79%
	Rent	21%
Type of Residence	House	76%
	Apartment	12%
	Duplex	3%
	Mobile Home	9%
Residence Locale	Large City	26%
	Small City	20%
	Town	12%
	Small Town	15%
	Rural Non-Farm	16%
	Rural Farm	8%
	Not Sure	3%

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Perceptions of Water Quality

<i>How would you rate the overall water quality of rivers and streams in your area?</i>	Very Poor	Poor	Fair	Good	Excellent	Not Sure
Overall	3.2%	15.1%	36.8%	30.8%	4.7%	9.7%
East Tennessee	3.1%	16.6%	38.8%	28.1%	3.4%	10.0%
Middle Tennessee	3.1%	14.8%	36.0%	32.0%	6.2%	8.0%
West Tennessee	3.6%	13.3%	35.1%	32.9%	4.4%	10.7%
Large City	3.6%	13.9%	35.6%	32.1%	5.1%	9.7%
Medium City	1.6%	15.9%	42.1%	26.2%	4.8%	9.5%
Rural Area	2.5%	22.8%	39.2%	27.8%	1.3%	6.3%
Less than High School	7.3%	14.6%	30.5%	25.6%	7.3%	14.6%
High School Diploma	3.2%	14.5%	37.0%	31.9%	4.9%	8.4%
College Graduate	2.6%	16.7%	31.9%	29.4%	2.6%	11.0%
Graduate Degree	1.6%	15.1%	39.7%	33.3%	5.6%	4.8%
Less than \$12,500	5.2%	20.8%	27.3%	27.3%	5.2%	14.3%
\$12,500-\$25,000	5.3%	14.4%	38.6%	27.3%	4.5%	9.8%
\$25,001-\$35,000	4.4%	15.9%	44.4%	27.8%	2.4%	5.6%
\$35,001-\$50,000	2.9%	11.6%	40.6%	33.3%	5.8%	5.8%
More than \$50,000	1.2%	13.9%	35.2%	36.1%	4.1%	9.4%
18-25	3.1%	15.4%	41.5%	33.8%	3.1%	3.1%
26-35	1.9%	15.5%	41.3%	31.6%	4.5%	5.2%
36-45	1.6%	16.8%	38.6%	31.0%	4.3%	7.6%
46-55	3.9%	16.9%	35.4%	29.2%	5.6%	9.0%
56-65	4.2%	11.9%	39.2%	28.7%	4.2%	11.9%
Over 65	5.2%	14.1%	27.4%	31.9%	5.9%	15.6%
African-American	0.9%	13.7%	44.4%	28.2%	6.0%	6.8%
White	3.3%	15.0%	36.1%	31.3%	4.7%	9.5%
Other Racial/Ethnic	11.8%	23.5%	23.5%	35.3%	0	5.9%
Male	3.5%	14.3%	38.1%	34.3%	4.8%	5.1%
Female	3.1%	15.5%	36.0%	28.8%	4.7%	11.9%

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Turning to the demographic variables, the most noticeable differences are between income groupings. Specifically, the lowest income group is the most likely to rate rivers/streams quality as ‘very poor’ or ‘poor’, and the least likely to rate such quality as ‘good’ or ‘excellent’. The highest income group displays just the opposite pattern.

<i>How would you rate the overall quality of the drinking water in your area?</i>	Very Poor	Poor	Fair	Good	Excellent	Not Sure
Overall	4.4%	9.3%	24.1%	44.8%	16.0%	1.4%
East Tennessee	4.4%	10.6%	28.8%	45.0%	10.3%	.9%
Middle Tennessee	5.8%	11.4%	27.4%	44.6%	8.9%	1.8%
West Tennessee	2.2%	4.4%	12.9%	44.9%	34.2%	1.3%
Large City	3.9%	8.3%	23.8%	45.4%	17.7%	.9%
Medium City	4.0%	12.7%	24.6%	46.0%	10.3%	2.4%
Rural Area	8.9%	12.7%	27.8%	36.7%	10.1%	3.8%
Less than High School	8.5%	11.0%	20.7%	40.2%	14.6%	4.9%
High School Diploma	4.9%	9.6%	25.1%	44.5%	14.5%	1.4%
College Graduate	2.2%	8.8%	26.8%	44.7%	17.5%	0
Graduate Degree	4.0%	8.7%	19.0%	47.6%	19.0%	1.6%
Less than \$12,500	7.8%	9.1%	19.5%	49.4%	11.7%	2.6%
\$12,500-\$25,000	4.5%	8.3%	30.3%	40.9%	14.4%	1.5%
\$25,001-\$35,000	6.3%	8.7%	22.2%	48.4%	11.9%	2.4%
\$35,001-\$50,000	4.3%	15.2%	22.5%	39.1%	17.4%	1.4%
More than \$50,000	2.0%	7.8%	23.8%	46.3%	19.7%	0.4%
18-25	10.8%	12.3%	20.0%	43.1%	9.2%	4.6%
26-35	4.5%	13.5%	27.7%	42.6%	10.3%	1.3%
36-45	1.6%	10.9%	25.0%	47.3%	14.1%	1.1%
46-55	4.5%	10.1%	25.3%	39.9%	19.1%	1.1%
56-65	4.9%	4.2%	26.6%	39.2%	23.8%	1.4%
Over 65	4.4%	5.2%	17.0%	57.0%	15.6%	0.7%
African-American	4.3%	8.5%	25.6%	41.0%	17.9%	2.6%
White	4.4%	9.1%	23.9%	45.7%	15.7%	1.2%
Other Racial/Ethnic	5.9%	11.8%	29.4%	35.3%	17.6%	0

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Male	3.8%	7.9%	21.9%	47.6%	17.5%	1.3%
Female	4.7%	10.1%	25.4%	43.2%	15.1%	1.4%

These data indicate that, statewide, respondents are quite satisfied with the quality of drinking water. Less than 15% rated their drinking water as 'poor' or 'very poor', while about 60% rated their water as 'good' or 'excellent'. West Tennesseans are much more likely than residents of other parts of the state to rate their water as 'excellent'. Rural residents are the least likely to judge the water supply as 'good' or 'excellent'. Those with less than a high school education, and those age 18-25, are most likely to rate drinking water as 'very poor' or 'poor', and least likely to rate the water supply as 'good' or 'excellent'. Respondents with advanced degrees, and those in the oldest age cohort, are least likely to rate the water supply as 'very poor' or 'poor', and most likely to rate it as 'good' or 'excellent'.

Lawn Care Pollution

<i>How do you dispose of grass clippings from your driveway or sidewalks after your lawn is mowed?</i>	Garbage	Yard	Drain	Mulch	Other	Lawn Service	Live in Apartment	Not Sure
Overall	13.3%	34.6%	.8%	33.0%	5.3%	4.7%	7.0%	1.4%
East	10.0%	34.6%	.6%	38.6%	6.5%	4.0%	4.4%	1.2%
Middle	7.4%	40.9%	1.5%	29.8%	4.9%	4.3%	9.5%	1.5%
West	26.7%	25.3%	0%	29.3%	4.0%	6.2%	7.1%	1.3%
Large City	13.7%	38.2%	.8%	36.4%	5.7%	3.6%	.2%	1.4%
Medium City	12.7%	16.7%	1.6%	7.1%	2.4%	11.9%	46.0%	1.6%
Rural Area	11.4%	31.6%	0%	45.6%	6.3%	2.5%	1.3%	1.3%
Less than High School	18.3%	45.1%	1.2%	17.1%	8.5%	3.7%	4.9%	1.2%
High School Diploma	12.4%	33.9%	0.7%	36.7%	4.7%	3.7%	6.1%	1.9%
College Graduate	13.2%	31.6%	0.4%	34.6%	7.0%	5.3%	7.9%	0
Graduate Degree	13.5%	33.3%	1.6%	29.4%	2.4%	7.1%	10.3%	2.4%
Less than \$12,500	11.7%	36.4%	1.3%	20.8%	9.1%	6.5%	10.4%	3.9%
\$12,500-\$25,000	16.7%	30.3%	1.5%	28.8%	8.3%	4.5%	9.1%	0.8%
\$25,001-\$35,000	13.5%	26.2%	0.8%	31.7%	6.3%	5.6%	14.3%	1.6%
\$35,001-\$50,000	15.8%	37.4%	0.7%	32.4%	2.9%	3.6%	5.0%	2.2%
More than \$50,000	12.7%	35.7%	0.4%	38.5%	4.9%	5.7%	1.2%	0.8%
18-25	16.9%	33.8%	1.5%	10.8%	12.3%	6.2%	13.8%	4.6%
26-35	16.8%	32.3%	2.6%	26.5%	3.9%	5.3%	11.0%	1.3%
36-45	16.8%	35.1%	0	35.1%	5.9%	2.7%	3.8%	0.5%
46-55	10.1%	31.5%	0.6%	43.3%	3.4%	6.7%	3.9%	0.6%
56-65	9.1%	40.6%	0.7%	32.9%	7.0%	4.2%	5.6%	0
Over 65	12.6%	35.6%	0	33.3%	3.7%	3.0%	8.1%	3.7%
African-American	37.6%	17.1%	1.7%	18.8%	5.1%	6.0%	12.8%	0.9%
White	9.2%	38.0%	0.6%	35.5%	5.2%	4.0%	5.9%	1.5%
Other Racial/Ethnic	17.6%	17.6%	5.9%	17.6%	11.8%	17.6%	11.8%	0
Male	11.4%	34.9%	0.6%	37.5%	4.1%	3.5%	7.0%	1.0%
Female	14.4%	34.4%	0.9%	30.4%	5.9%	5.4%	7.0%	1.6%

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Across the state, the most common methods of disposing of lawn clippings are mulching and spraying clippings back into the lawn. Hardly any of the respondents said they sprayed clippings down a drain. Middle Tennesseans are most likely to report spraying clippings back into the yard, while mulching is preferred by East Tennesseans. Residents of West Tennessee are far more likely to report disposing of clippings with other garbage. Not surprisingly, residents of rural areas are by far the most likely to mulch, while urban dwellers prefer spraying the clippings back into the yard. With respect to the demographic variables, those in the lowest education group are the most likely to report disposing of lawn clippings in the garbage or in the yard, and least likely to use clippings as mulch. Further, the tendency to use clippings as mulch increases as income increases. Finally, African Americans are much more likely to report disposing of clippings through the garbage, while whites tend either to mulch clippings, or dispose of them in the yard.

<i>Do you or someone else test the soil on your lawn to determine how often fertilizer or pesticides are needed?</i>	Yes	No	Not Sure
Overall	17.8%	74.9%	7.2%
East	15.3%	78.8%	5.9%
Middle	13.9%	77.8%	8.3%
West	27.2%	65.2%	7.6%
Large City	19.5%	78.5%	2.0%
Medium City	14.5%	46.8%	38.7%
Rural Area	10.1%	88.6%	1.3%
Less than High School	12.2%	82.9%	4.9%
High School Diploma	15.2%	77.0%	7.7%
College Graduate	19.7%	73.7%	6.6%
Graduate Degree	26.4%	64.8%	8.8%
Less than \$12,500	13.0%	80.5%	6.5%
\$12,500-\$25,000	12.1%	77.3%	10.6%
\$25,001-\$35,000	15.9%	72.2%	11.9%
\$35,001-\$50,000	13.9%	80.3%	5.8%
More than \$50,000	25.4%	71.3%	3.3%
18-25	12.3%	72.3%	15.4%
26-35	17.6%	71.2%	11.1%
36-45	22.7%	74.6%	2.7%
46-55	16.9%	79.2%	3.9%
56-65	18.2%	79.0%	2.8%
Over 65	14.8%	72.6%	12.6%
African-American	27.4%	63.2%	9.4%
White	16.1%	77.4%	6.5%

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Other Racial/Ethnic	25.0%	50.0%	25.0%
Male	16.2%	76.8%	7.0%
Female	18.7%	73.9%	7.4%

About three-fourths of Tennesseans report they do not test their lawns with respect to fertilizers or pesticides. West Tennesseans are more likely to report such testing. The large proportion of residents of medium-sized cities who reported 'not sure' most likely did so because almost half of these residents live in apartments. Among the demographic differences of note, the tendency to test increases as education increases; further, the highest income group is by far the most likely to report lawn testing. Finally, African Americans are more likely than whites to test their lawns.

<i>How frequently do you or someone else use fertilizer or pesticides on your lawn?</i>	Monthly	2- 3 times a year	Once a year	Never	Not Sure
Overall	5.0%	19.7%	25.5%	40.7%	9.2%
East	3.4%	16.2%	25.9%	44.9%	9.7%
Middle	4.6%	17.0%	28.8%	41.8%	7.7%
West	7.6%	28.6%	20.1%	33.0%	10.7%
Large City	5.1%	22.4%	29.5%	39.9%	3.2%
Medium City	7.3%	9.8%	8.1%	30.9%	43.9%
Rural Area	0	12.7%	20.3%	64.6%	2.5%
Less than High School	2.4%	8.5%	17.1%	64.6%	7.3%
High School Diploma	5.4%	15.9%	26.0%	43.6%	9.1%
College Graduate	3.5%	29.5%	31.3%	28.6%	7.0%
Graduate Degree	8.0%	23.2%	17.6%	37.6%	13.6%
Less than \$12,500	3.9%	10.4%	16.9%	55.8%	13.0%
\$12,500-\$25,000	3.8%	7.6%	22.0%	54.5%	12.1%
\$25,001-\$35,000	7.2%	10.4%	20.8%	48.0%	13.6%
\$35,001-\$50,000	5.8%	19.0%	24.8%	44.5%	5.8%
More than \$50,000	6.6%	34.8%	31.1%	22.1%	5.3%
18-25	16.9%	13.8%	13.8	33.8%	21.5%
26-35	8.5%	20.3%	23.5%	37.3%	10.5%
36-45	5.9%	22.7%	28.1%	36.8%	6.5%
46-55	2.3%	23.7%	23.2%	45.8%	5.1%
56-65	0	18.2%	30.8%	46.2%	4.9%
Over 65	3.0%	13.3%	26.7%	43.7%	13.3%
African-American	12.8%	18.8%	18.8%	35.0%	14.5%
White	3.7%	20.3%	26.8%	41.6%	7.6%
Other Racial/Ethnic	5.0%	20.0%	25.6%	40.6%	8.9%
Male	4.5%	19.4%	25.8%	43.6%	6.7%
Female	5.2%	19.9%	25.3%	39.0%	10.6%

About 25% of respondents report fertilizing their lawn at least quarterly, while 40% say they never fertilize. West Tennesseans report the highest frequency of fertilizing. Almost two-thirds of residents of rural areas report never fertilizing their lawns. Those with less than a high school education are the most likely to report never using fertilizer or pesticides, while the likelihood of reporting that fertilizers or pesticides are never used decreases as income increases. Finally, African Americans apply lawn chemicals more frequently than do whites.

Car Care Pollution

<i>Do you normally wash your car, truck or other vehicle at home or at a car wash?</i>	Home	Car Wash	Both	Not Sure
Overall	32.1%	54.5%	9.7%	3.7%
East	34.8%	51.7%	10.7%	2.8%
Middle	25.9%	61.6%	8.8%	3.8%
West	37.1%	48.2%	9.8%	4.9%
Large City	35.9%	50.2%	11.2%	2.7%
Medium City	14.6%	73.2%	4.9%	7.3%
Rural Area	29.5%	60.3%	5.1%	5.1%
Less than High School	28.4%	58.0%	3.7%	9.9%
High School Diploma	34.3%	53.2%	10.2%	2.4%
College Graduate	34.8%	52.9%	8.4%	4.0%
Graduate Degree	23.0%	59.5%	15.1%	2.4%
Less than \$12,500	29.2%	58.3%	2.8%	9.7%
\$12,500-\$25,000	30.0%	54.6%	8.5%	6.9%
\$25,001-\$35,000	27.2%	59.2%	7.2%	6.4%
\$35,001-\$50,000	30.9%	56.8%	11.5%	0.7%
More than \$50,000	36.1%	50.8%	12.7%	0.4%
18-25	40.6%	56.3%	3.1%	0
26-35	29.9%	61.7%	8.5%	1.9%
36-45	35.9%	48.9%	14.1%	1.1%
46-55	30.5%	54.2%	10.2%	5.1%
56-65	31.7%	50.0%	13.4%	4.9%
Over 65	28.8%	58.3%	6.8%	6.1%
African-American	29.8%	62.3%	3.5%	4.4%
White	32.7%	53.1%	11.0%	3.2%
Other Racial/Ethnic	29.4%	58.8%	0	11.8%
Male	30.3%	54.1%	13.4%	2.2%
Female	33.2%	54.6%	7.7%	4.6%

Over one-half of all respondents report exclusive use of a car wash to clean their personal vehicles; only West Tennesseans fall below 50% in this regard. Residents of medium-sized cities are most likely to use a car wash, probably due to the fact that about one-half live in apartments, and would have no place to wash a vehicle. Those with graduate degrees are the least likely to report washing their own cars, while those with the highest income are the most likely to do so. Respondents age 18-25 are far more likely to report washing their cars at home.

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<i>Does the water from washing your car get absorbed into the yard or grassy area or does it flow into a drain?</i>	Yard	Drain	Not Sure
Overall	76.7%	21.3%	1.9%
East	78.6%	18.6%	2.8%
Middle	87.4%	11.7%	.9%
West	62.9%	35.2%	1.9%
Large City	77.1%	21.0%	1.9%
Medium City	54.2%	41.7%	4.2%
Rural Area	92.6%	7.4%	0%
Less than High School	88.5%	7.7%	3.8%
High School Diploma	74.5%	23.4%	2.1%
College Graduate	76.5%	21.4%	2.0%
Graduate Degree	79.2%	20.8%	0
Less than \$12,500	78.3%	21.7%	0
\$12,500-\$25,000	74.0%	20.0%	6.0%
\$25,001-\$35,000	69.8%	27.9%	2.3%
\$35,001-\$50,000	79.7%	20.3%	0
More than \$50,000	78.2%	20.2%	1.7%
18-25	71.4%	25.0%	3.6%
26-35	71.4%	28.6%	0
36-45	70.7%	27.2%	2.2%
46-55	84.7%	11.1%	4.2%
56-65	84.4%	14.1%	1.6%
Over 65	76.6%	23.4%	0
African-American	50.0%	47.4%	2.6%
White	80.3%	17.8%	1.9%
Other Racial/Ethnic	80.0%	20.0%	0
Male	83.9%	14.6%	1.5%
Female	72.3%	25.4%	2.2%

Among those who reported washing their car at home, either exclusively or in conjunction with a car wash, over 75% say the waste water flows into a yard or grassy area, not a drain. West Tennesseans were the most likely to report waste water flowing into a drain. With respect to location of residence, rural residents are much more likely to report such water flowing into a yard than are urban residents, while residents of medium-sized cities are the least likely to report such a

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drainage method. Those with less than a high school diploma are most likely to use the yard, and least likely to use a drain, for runoff. Older respondents, whites, and males are also more likely to report allowing runoff to a yard or grassy area.

<i>Where do you change the oil for your car or other vehicles? Do you change it at home or do you have it done at a garage or service center?</i>	Home	Service Center	Not Sure
Overall	16.8%	80.9%	2.3%
East	16.7%	82.1%	1.3%
Middle	17.1%	80.1%	2.8%
West	16.7%	80.2%	3.2%
Large City	16.9%	82.1%	1.1%
Medium City	9.8%	82.1%	8.1%
Rural Area	28.6%	68.8%	2.6%
Less than High School	17.3%	74.1%	8.6%
High School Diploma	19.4%	79.2%	1.4%
College Graduate	15.8%	83.3%	0.9%
Graduate Degree	10.5%	87.1%	2.4%
Less than \$12,500	22.2%	69.4%	8.3%
\$12,500-\$25,000	15.4%	80.0%	4.6%
\$25,001-\$35,000	18.4%	80.8%	0.8%
\$35,001-\$50,000	16.5%	83.5%	0
More than \$50,000	15.2%	84.8%	0
18-25	20.0%	78.5%	1.5%
26-35	23.2%	76.1%	0.6%
36-45	17.9%	81.5%	0.5%
46-55	15.9%	83.0%	1.1%
56-65	14.1%	82.4%	3.5%
Over 65	10.8%	83.1%	6.2%
African-American	9.6%	86.8%	3.5%
White	18.1%	80.0%	1.9%
Other Racial/Ethnic	23.5%	70.6%	5.9%
Male	20.6%	77.8%	1.6%
Female	14.6%	82.6%	2.7%

<i>How do you dispose of the used oil? Do you pour it in the yard or take it to a recycling center?</i>	Yard	Recycling Center	Other	Not Sure
Overall	4.8%	80.0%	8.3%	6.9%
East	7.5%	77.4%	3.8%	11.3%
Middle	0%	87.3%	9.1%	3.6%
West	8.1%	73.0%	13.5%	5.4%
Large City	4.5%	81.1%	9.0%	5.4%
Medium City	8.3%	66.7%	16.7%	8.3%
Rural Area	4.5%	81.8%	0%	13.6%
Less than High School	21.4%	57.1%	14.3%	7.1%
High School Diploma	3.7%	80.5%	7.3%	8.5%
College Graduate	2.8%	83.3%	8.3%	5.8%
Graduate Degree	0	92.3%	7.7%	0
Less than \$12,500	12.5%	62.5%	12.5%	12.5%
\$12,500-\$25,000	5.0%	75.0%	10.0%	10.0%
\$25,001-\$35,000	4.3%	82.6%	8.7%	4.3%
\$35,001-\$50,000	0	87.0%	8.7%	4.3%
More than \$50,000	0	89.2%	5.4%	5.4%
18-25	7.7%	76.9%	7.7%	7.7%
26-35	2.8%	83.3%	5.6%	8.3%
36-45	6.1%	75.8%	12.1%	6.1%
46-55	3.6%	82.1%	10.7%	3.6%
56-65	5.0%	80.0%	5.0%	10.0%
Over 65	7.1%	78.6%	7.1%	7.1%
African-American	18.2%	72.7%	9.1%	0
White	3.8%	80.8%	8.5%	6.9%
Other Racial/Ethnic	0	75.0%	0	25.0%
Male	6.2%	83.1%	9.2%	1.5%
Female	3.8%	77.5%	7.5%	11.3%

Over 80% of all respondents report having their oil changed at a service center, rather than doing it themselves at home. The only exception to this occurs among rural residents, over one-fourth of whom report changing their own oil. Respondents with less education and lower incomes, as well as younger respondents, are less likely to use a service center for oil changes. Slight differences are also observed between African Americans and whites, and between males and females.

Among those who do change their own oil, the vast majority report disposing of used motor oil by recycling, and only a small fraction report disposing of used oil in their yard. Respondents with less than a high school diploma, and who earn less than \$12,500 annually, are least likely to use a recycling center for oil disposal. White respondents and males are also more likely to report recycling used oil.

Pollution From Cleaning Products

<i>Are the cleaning products used in your home labeled biodegradable?</i>	All	Some	No	Not Sure
Overall	28.6%	33.5%	10.0%	27.9%
Region				
East	27.1%	36.1%	10.0%	26.8%
Middle	25.8%	33.2%	11.7%	29.2%
West	34.7%	30.2%	7.6%	27.6%
City Type				
Large City	27.6%	35.0%	9.2%	28.1%
Medium City	26.2%	28.6%	15.1%	30.2%
Rural Area	38.0%	29.1%	8.9%	24.1%
Education				
Less than High School	28.0%	22.0%	13.4%	38.6%
High School Diploma	29.9%	35.3%	7.7%	27.1%
College Graduate	24.6%	35.3%	7.7%	27.1%
Graduate Degree	31.7%	30.2%	13.5%	24.6%
Income				
Less than \$12,500	31.2%	20.8%	9.1%	39.0%
\$12,500-\$25,000	32.6%	28.0%	6.8%	32.6%
\$25,001-\$35,000	34.9%	32.5%	9.5%	23.0%
\$35,001-\$50,000	21.6%	39.6%	11.5%	27.3%
More than \$50,000	25.0%	38.5%	10.7%	25.8%
Age				
18-25	23.1%	29.2%	15.4%	32.3%
26-35	21.9%	31.0%	10.3%	36.8%
36-45	33.5%	36.8%	11.4%	18.4%
46-55	24.2%	41.0%	10.7%	24.2%
56-65	34.3%	33.6%	6.3%	25.9%
Over 65	32.6%	23.0%	7.4%	37.0%
Race/Ethnicity				
African-American	35.9%	30.8%	10.3%	23.1%
White	27.4%	34.3%	9.8%	28.5%
Other Racial/Ethnic	29.4%	23.5%	11.8%	35.3%
Gender				
Male	21.6%	39.7%	9.8%	28.9%
Female	32.6%	30.0%	10.1%	27.3%

There is substantial uncertainty among Tennesseans with respect to the status of home cleaning products; over one-fourth are not sure whether these products are biodegradable. However, of those who could answer this question, most report that some or all of these materials are biodegradable. Residents of rural areas, and of West Tennessee, as well as lower-income, older, African American, and female respondents, are most likely to report that all of their cleaning products are biodegradable. With respect to uncertainty, respondents in the lowest education and

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income strata re more likely to report not being sure whether their cleaning products are biodegradable.

<i>Would you be willing to use cleaning products that are known to be safer for the environment, even if they cost more?</i>	Yes	No	Depends	Not Sure
Overall	64.3%	9.8%	23.7%	2.2%
East	65.5%	10.8%	20.7%	3.0%
Middle	63.5%	9.9%	24.5%	2.1%
West	63.7%	8.2%	26.7%	1.4%
Large City	62.7%	9.2%	25.8%	2.4%
Medium City	69.6%	17.4%	11.6%	1.4%
Rural Area	69.8%	3.8%	24.5%	1.9%
Less than High School	51.2%	14.6%	26.8%	7.3%
High School Diploma	63.4%	9.3%	24.7%	2.5%
College Graduate	62.3%	11.6%	24.6%	1.4%
Graduate Degree	78.2%	5.1%	16.7%	0
Less than \$12,500	50.0%	17.5%	27.5%	5.0%
\$12,500-\$25,000	60.0%	13.8%	21.3%	5.0%
\$25,001-\$35,000	71.8%	15.3%	11.8%	1.2%
\$35,001-\$50,000	71.8%	7.1%	18.8%	2.4%
More than \$50,000	64.5%	6.5%	27.1%	1.9%
18-25	82.4%	5.9%	8.8%	2.9%
26-35	69.5%	7.3%	20.7%	2.4%
36-45	59.2%	11.5%	26.9%	2.3%
46-55	60.3%	8.6%	30.2%	0.9%
56-65	70.1%	7.2%	21.6%	1.0%
Over 65	57.3%	16.0%	21.3%	5.3%
African-American	67.9%	10.3%	20.5%	1.3%
White	63.8%	9.2%	24.6%	2.5%
Other Racial/Ethnic	55.6%	22.2%	22.2%	0
Male	61.1%	8.8%	27.5%	2.6%
Female	66.1%	10.3%	21.6%	2.0%

Among respondents who did not know whether their cleaning products were biodegradable, or who reported these products were not, about two-thirds say they would use environmentally safe cleaning products, even if they were more costly. Between 20%-25% said it would depend on how much more these materials would cost. Only about one-in-ten said they would not switch to safer

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products if they had to pay more. Residents of medium-sized cities were the most likely to respond 'no' to this question, and least likely to say it depends on the price difference.

Willingness to pay more for biodegradable products increases as does level of education. Respondents with annual incomes of less than \$12,500 would be least likely to purchase such products, as would those over age 65. No appreciable differences are apparent with respect to race or gender.

<i>Does your home have sewer or a septic tank?</i>	Sewer	Septic	Both	Not Sure
Overall	51.3%	45.1%	0.2%	3.3%
East	45.2%	52.6%	0	2.2%
Middle	47.7%	48.0%	0	4.3%
West	65.3%	30.2%	0.9%	3.6%
Large City	50.2%	47.3%	0.2%	2.4%
Medium City	81.0%	11.9%	0	7.1%
Rural Area	16.5%	78.5%	1.3%	3.8%
Less than High School	41.5%	53.7%	0	4.9%
High School Diploma	46.7%	50.5%	0	2.8%
College Graduate	60.1%	36.4%	0.4%	3.1%
Graduate Degree	59.5%	36.5%	0.8%	3.2%
Less than \$12,500	46.8%	46.8%	0	6.5%
\$12,500-\$25,000	50.0%	43.9%	0.8%	5.3%
\$25,001-\$35,000	55.6%	40.5%	0	4.0%
\$35,001-\$50,000	45.3%	51.8%	0	2.9%
More than \$50,000	55.3%	43.9%	0	0.8%
18-25	47.7%	36.9%	0	15.4%
26-35	55.5%	40.6%	0	3.9%
36-45	49.2%	47.0%	0	3.8%
46-55	48.9%	49.4%	1.1%	0.6%
56-65	52.4%	46.9%	0	0.7%
Over 65	51.4%	43.7%	0	2.2%
African-American	76.9%	16.2%	0	6.8%
White	47.7%	49.7%	0.1%	2.5%
Other Racial/Ethnic	35.3%	41.2%	5.9%	17.6%
Male	48.3%	48.9%	0	2.9%
Female	53.1%	43.0%	0.4%	3.6%

Tennesseans are slightly more likely to rely on sewers over septic tanks for waste disposal. West Tennesseans are substantially more likely to use sewers, while a majority of East Tennesseans use septic tanks. Not surprisingly, septic systems predominate in rural areas, while sewers are more common in urban areas. However, residents of medium-sized cities are far more likely than big city dwellers to report reliance on sewers. Reported reliance on sewer systems also increases with education and income. African American respondents are far more likely than whites to rely on sewer systems.

<i>Do you pay a utility company for your water or does your water come from a well?</i>	Utility	Well	Not Sure
Overall	86.6%	12.4%	1.0%
East	82.6%	17.1%	.3%
Middle	91.1%	7.4%	1.5%
West	85.8%	12.9%	1.3%
Large City	87.9%	11.9%	.2%
Medium City	93.7%	.8%	5.6%
Rural Area	63.3%	35.4%	1.3%
Less than High School	79.3%	20.7%	0
High School Diploma	85.7%	13.8%	0.5%
College Graduate	89.0%	9.6%	1.3%
Graduate Degree	88.9%	7.9%	3.2%
Less than \$12,500	80.5%	18.2%	1.3%
\$12,500-\$25,000	84.8%	14.4%	0.8%
\$25,001-\$35,000	86.5%	11.1%	2.4%
\$35,001-\$50,000	87.1%	11.5%	1.4%
More than \$50,000	88.9%	10.2%	0.8%
18-25	92.3%	6.2%	1.5%
26-35	81.0%	7.1%	1.9%
36-45	83.8%	14.6%	1.6%
46-55	84.3%	15.2%	0.6%
56-65	83.2%	16.8%	0
Over 65	88.1%	11.1%	0.7%
African-American	93.2%	3.4%	3.4%
White	85.3%	14.2%	0.6%
Other Racial/Ethnic	88.2%	5.9%	5.9%
Male	85.4%	13.3%	1.3%
Female	87.2%	11.9%	0.9%

Utility companies are clearly the predominant source of water for Tennesseans, across all categories of place of residence. The only deviation from this statement is found among residents of rural areas, who are more likely than any other group to report reliance on well water. However, even here about 63% report getting water from a utility company. Reliance on a utility company for home water supplies increases as do both formal education and annual income. African Americans are also more likely to rely on a utility company for water, compared to white respondents.

Opinions Concerning Water Pollution

<i>Most water pollution comes from everyday activities in our homes, workplaces, and cars.</i>	True	False	Not Sure
Overall	76.3%	19.6%	4.0%
East	75.1%	20.6%	4.4%
Middle	76.9%	19.4%	3.7%
West	77.3%	18.7%	4.0%
Large City	75.7%	19.8%	4.5%
Medium City	75.4%	21.4%	3.2%
Rural Area	82.3%	16.5%	1.3%
Less than High School	76.8%	14.6%	8.5%
High School Diploma	77.8%	18.0%	4.2%
College Graduate	76.3%	21.1%	2.6%
Graduate Degree	71.4%	26.2%	2.4%
Less than \$12,500	80.5%	15.6%	3.9%
\$12,500-\$25,000	75.8%	18.9%	5.3%
\$25,001-\$35,000	78.6%	16.7%	4.8%
\$35,001-\$50,000	79.1%	19.4%	1.4%
More than \$50,000	77.0%	21.3%	1.6%
18-25	83.1%	15.4%	1.5%
26-35	86.5%	12.3%	1.3%
36-45	77.3%	20.5%	2.2%
46-55	75.3%	23.0%	1.7%
56-65	74.1%	20.3%	5.6%
Over 65	65.2%	23.0%	11.9%
African-American	77.8%	19.7%	2.6%
White	76.2%	19.8%	4.0%
Other Racial/Ethnic	76.5%	5.9%	17.6%
Male	73.3%	24.4%	2.2%
Female	76.1%	16.9%	5.0%

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<i>Small changes in people's daily habits and activities will have no effect on improving water quality</i>	True	False	Not Sure
Overall	14.5%	82.0%	3.6%
East	15.9%	80.1%	4.0%
Middle	14.8%	81.2%	4.0%
West	12.0%	85.8%	2.2%
Large City	15.0%	81.7%	3.3%
Medium City	12.7%	82.5%	4.8%
Rural Area	12.7%	83.5%	3.8%
Less than High School	26.8%	62.2%	11.0%
High School Diploma	15.9%	81.1%	3.0%
College Graduate	7.9%	88.6%	3.5%
Graduate Degree	11.1%	88.9%	0
Less than \$12,500	28.6%	63.6%	7.8%
\$12,500-\$25,000	19.7%	75.0%	5.3%
\$25,001-\$35,000	11.1%	84.9%	4.0%
\$35,001-\$50,000	12.9%	86.3%	0.7%
More than \$50,000	8.2%	91.0%	0.8%
18-25	9.2%	90.8%	0
26-35	8.4%	91.0%	0.6%
36-45	10.3%	89.2%	0.5%
46-55	12.4%	84.8%	2.8%
56-65	19.6%	75.5%	4.9%
Over 65	27.4%	60.0%	12.6%
African-American	16.2%	81.2%	2.6%
White	14.0%	82.1%	3.9%
Other Racial/Ethnic	23.5%	76.5%	0
Male	14.6%	83.5%	1.9%
Female	14.4%	81.1%	4.5%

At least three-fourths of Tennesseans, regardless of where they live, believe that people engaged in everyday activities are the primary source of water pollution. Rural Tennesseans are slightly more likely to affirm this belief. However, the tendency to disagree with this statement increases with education, income and age.

Moreover, at least 80% of Tennesseans believe that even small changes in daily life activities can positively impact water pollution levels. This tendency is also a function of education and income.

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However, the likelihood of disagreeing with this statement decreases as age increases. No appreciable differences were found on either variable between African Americans and whites, and between men and women.

<i>Pet waste from household pets is not a significant source of water pollution.</i>	True	False	Not Sure
Overall	38.1%	51.1%	10.6%
East	37.7%	49.5%	12.8%
Middle	41.8%	49.5%	8.3%
West	33.3%	55.6%	10.7%
Large City	39.0%	49.5%	11.2%
Medium City	33.3%	57.9%	8.7%
Rural Area	38.0%	54.4%	7.6%
Less than High School	35.4%	52.4%	12.2%
High School Diploma	35.7%	52.8%	11.5%
College Graduate	43.0%	47.4%	9.6%
Graduate Degree	38.9%	54.0%	7.1%
Less than \$12,500	28.6%	51.9%	19.5%
\$12,500-\$25,000	38.6%	50.8%	10.8%
\$25,001-\$35,000	34.9%	59.5%	5.6%
\$35,001-\$50,000	34.5%	57.6%	7.9%
More than \$50,000	47.1%	43.9%	9.0%
18-25	35.4%	58.5%	6.2%
26-35	37.4%	58.7%	3.9%
36-45	39.5%	51.9%	8.6%
46-55	42.7%	48.9%	8.4%
56-65	35.7%	51.0%	13.3%
Over 65	33.3%	43.0%	23.7%
African-American	26.5%	64.1%	9.4%
White	39.8%	49.4%	10.7%
Other Racial/Ethnic	47.1%	29.4%	23.5%
Male	44.1%	47.6%	8.3%
Female	34.7%	53.1%	12.3%

<i>Droppings from pigeons and other birds such as ducks and geese can be a significant source of water pollution.</i>	True	False	Not Sure
Overall	68.4%	24.6%	6.9%
East	68.8%	24.6%	6.5%
Middle	66.5%	25.2%	8.0%
West	70.7%	23.6%	5.8%
Large City	68.9%	24.0%	6.9%
Medium City	67.5%	27.8%	4.8%
Rural Area	65.8%	24.1%	10.1%
Less than High School	72.0%	19.5%	8.5%
High School Diploma	70.3%	21.5%	8.1%
College Graduate	67.5%	28.1%	4.4%
Graduate Degree	61.9%	32.5%	5.6%
Less than \$12,500	70.1%	19.5%	10.4%
\$12,500-\$25,000	67.4%	23.5%	9.1%
\$25,001-\$35,000	72.2%	21.4%	6.3%
\$35,001-\$50,000	65.5%	26.6%	7.9%
More than \$50,000	66.8%	29.1%	4.1%
18-25	64.6%	30.8%	4.6%
26-35	60.6%	32.9%	6.5%
36-45	67.0%	26.5%	6.5%
46-55	69.7%	24.7%	5.6%
56-65	72.0%	20.3%	7.7%
Over 65	75.6%	14.8%	9.6%
African-American	70.1%	25.6%	4.3%
White	69.4%	23.4%	7.1%
Other Racial/Ethnic	23.5%	52.9%	23.5%
Male	58.4%	33.3%	8.3%
Female	74.1%	19.6%	6.3%

About one-half of all respondents believe that household pet waste is a significant source of water pollution, regardless of where they live. West Tennesseans and rural residents were most likely to concur in this assessment. Respondents with low annual incomes were more likely to view pet wastes as a problem, while those with the highest incomes were least likely to do so. African American and female respondents were more likely to view pet wastes as a problem.

Droppings from wild birds are seen to be an even more important source of water pollution, again regardless of residence. This tendency is slightly stronger among those with no college education, as well as among our older respondents. Women were substantially more likely than men to perceive wild bird wastes as a significant source of pollution.

Nonpoint Source Water Pollution

<i>Are you familiar with the term "Nonpoint Source Pollution"?</i>	Yes	No	Not Sure
Overall	6.4%	93.5%	.1%
East	6.9%	92.8%	.3%
Middle	6.5%	93.5%	0
West	5.8%	94.2%	0
Large City	6.3%	93.7%	0
Medium City	8.7%	90.5%	.8%
Rural Area	2.5%	97.5%	0
Less than High School	8.5%	91.5%	0
High School Diploma	3.5%	96.3%	0.2%
College Graduate	8.8%	91.2%	0
Graduate Degree	10.3%	89.7%	0
Less than \$12,500	6.5%	92.2%	1.3%
\$12,500-\$25,000	3.8%	96.2%	0
\$25,001-\$35,000	6.3%	93.7%	0
\$35,001-\$50,000	7.2%	92.8%	0
More than \$50,000	8.2%	91.8%	0
18-25	3.1%	95.4%	1.5%
26-35	6.5%	93.5%	0
36-45	5.4%	94.6%	0
46-55	7.9%	92.1%	0
56-65	5.6%	94.4%	0
Over 65	8.1%	91.9%	0
African-American	6.0%	94.0%	0
White	6.3%	93.5%	0.1%
Other Racial/Ethnic	5.9%	94.1%	0
Male	10.8%	88.9%	0.3%
Female	4.0%	96.0%	0

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<i>Source of Nonpoint Pollution</i>	Ag Chemical Runoff	Barnyard Runoff	Construction Runoff	Auto Fluids	Lawn Chemicals	Animal Droppings	Not Sure
Overall	30.3%	6.2%	14.8%	19.7%	12.9%	5.4%	10.6%
East	25.5%	7.8%	13.4%	22.7%	12.1%	5.9%	12.1%
Middle	31.4%	6.2%	16.9%	16.9%	12.0%	6.2%	10.5%
West	35.6%	4.0%	13.8%	19.6%	15.1%	3.6%	8.4%
Large City	32.0%	6.6%	14.4%	18.3%	14.5%	5.9%	8.3%
Medium City	19.8%	3.2%	19.0%	29.4%	9.5%	4.0%	15.1%
Rural Area	34.2%	8.9%	12.7%	15.2%	3.8%	3.8%	21.5
Less than High School	20.7%	7.3%	13.4%	18.3%	13.4%	7.3%	19.5%
High School Diploma	29.7%	7.5%	12.1%	21.3%	11.7%	6.8%	11.0%
College Graduate	34.6%	3.1%	21.1%	16.7%	14.9%	2.2%	7.4%
Graduate Degree	32.5%	7.1%	12.7%	21.4%	13.5%	4.8%	7.9%
Less than \$12,500	22.1%	7.8%	14.3%	23.4%	9.1%	5.2%	18.2%
\$12,500-\$25,000	26.5%	8.3%	14.4%	22.0%	13.6%	6.1%	9.1%
\$25,001-\$35,000	28.6%	6.3%	17.5%	21.4%	8.7%	7.1%	10.3%
\$35,001-\$50,000	30.9%	6.5%	13.7%	24.5%	10.8%	7.9%	5.8%
More than \$50,000	38.9%	4.5%	16.4%	17.6%	15.6%	2.9%	4.1%
18-25	27.7%	3.1%	18.5%	27.7%	7.7%	7.7%	7.7%
26-35	27.1%	7.7%	21.3%	20.6%	16.1%	1.9%	5.2%
36-45	34.1%	7.0%	14.6%	21.6%	11.9%	4.3%	6.5%
46-55	36.0%	5.1%	16.9%	19.7%	10.7%	5.6%	6.2%
56-65	28.0%	4.9%	9.1%	17.5%	17.5%	8.4%	14.7%
Over 65	25.9%	6.7%	10.4%	16.3%	11.1%	5.9%	23.7%
African-American	17.1%	5.1%	21.4%	29.9%	10.3%	8.5%	7.7%
White	32.8%	6.3%	14.0%	17.9%	12.9%	4.8%	11.1%
Other Racial/Ethnic	29.4%	5.9%	5.9%	23.5%	17.6%	11.8%	5.9%
Male	37.8%	7.0%	12.1%	23.8%	11.1%	1.0%	7.3%
Female	26.1%	5.8%	16.4%	17.4%	13.8%	7.9%	12.6%

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Tennesseans are overwhelmingly unfamiliar with the term “Nonpoint source pollution,” regardless of residence. The only notable difference on the demographic variables is that men are more likely than women to express familiarity with the term.

Once the term is explained, respondents are in surprising agreement with respect to the important sources of nonpoint source pollution. Specifically, runoff from agricultural chemicals are seen as the most important source, followed by automobile fluid runoff, construction runoff, and lawn chemicals. These trends are consistent across all categories of residence. Respondents with higher levels of education, and higher incomes, are more likely to view agricultural runoff as the most important source, as are white respondents, and men.

<i>If you believed that the quality of water in your area was not good, how would you prefer to improve the quality? Would you prefer to pay for cleaner water through an assessed fee or through a tax increase?</i>	Assessed Fee	Tax Increase	Neither	Other	Not Sure
Overall	44.3%	22.6%	21.3%	4.3%	7.6%
East	41.4%	23.7%	18.7%	5.0%	11.2%
Middle	44.3%	20.6%	24.6%	4.6%	5.8%
West	48.2%	24.1%	20.1%	2.7%	4.9%
Large City	44.5%	21.8%	21.3%	4.7%	7.7%
Medium City	45.2%	25.4%	21.4%	2.4%	5.6%
Rural Area	43.0%	25.3%	21.5%	1.3%	8.9%
Less than High School	31.7%	23.2%	20.7%	3.7%	20.7%
High School Diploma	43.2%	23.4%	21.5%	3.5%	8.4%
College Graduate	49.8%	18.5%	19.8%	7.5%	4.4%
Graduate Degree	46.8%	28.6%	22.2%	1.6%	0.8%
Less than \$12,500	36.4%	27.3%	27.3%	1.3%	7.8%
\$12,500-\$25,000	41.7%	20.5%	22.7%	2.3%	12.9%
\$25,001-\$35,000	42.1%	24.6%	20.6%	4.8%	7.9%
\$35,001-\$50,000	51.8%	22.3%	17.3%	3.6%	5.0%
More than \$50,000	49.4%	22.6%	18.5%	5.8%	3.7%
18-25	40.0%	40.0%	15.4%	1.5%	3.1%
26-35	45.2%	26.5%	18.7%	3.2%	6.5%
36-45	50.5%	20.7%	21.7%	4.9%	2.2%
46-55	44.4%	19.7%	21.3%	7.9%	6.7%
56-65	49.7%	18.9%	18.2%	2.1%	11.2%
Over 65	31.9%	21.5%	29.6%	3.0%	14.1%
African-American	40.2%	23.9%	29.9%	1.7%	4.3%

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White	45.4%	22.3%	20.0%	4.6%	7.7%
Other Racial/Ethnic	29.4%	23.5%	23.5%	5.9%	17.6%
Male	43.6%	20.4%	23.6%	7.0%	5.4%
Female	44.6%	23.9%	20.0%	2.7%	8.8%

To cover the costs of improving water quality, should it be necessary, Tennesseans would prefer an assessed fee on water use over a general tax increase by a two-to-one margin. This pattern holds across all residential groupings. This preference for an assessed fee over a tax increase strengthens with level of education and income.