

# Post-Campaign Results for the Clean Water Education Partnership

## **Methodology**

A 26-item survey instrument was created in partnership with East Carolina University's Center for Survey Research. It was designed to measure awareness, perceptions and behaviors related to water quality and stormwater runoff in specific areas of North Carolina. The same instrument gathered respondent data on gender, age, income, education and ethnicity. There were two versions of the survey instrument: mail and telephone (See Appendix A for instruments). For the telephone survey, respondent telephone numbers were coded as urban, suburban or rural dwellers by the survey sampling company who provided the sample. Both the telephone and the mail survey were targeted to specific zip codes (See Appendix B for zip codes).

Respondents for the telephone survey were selected from a random sample of households with telephones within the specified zip codes using random digit dialing. The sample of 8,000 telephone numbers was purchased from a reputable survey sampling company. Respondents for the mail survey were selected from a random sample of directory listed households within the specified zip codes. This sample of 1,500 names and addresses was purchased from the same sampling company.

Data for the surveys were collected between September 2007 and October 2007. Over 8,000 calls were placed to capture 479 completed telephone surveys and 1,500 mailings were sent to yield 236 completed mail surveys. With a total sample size of 715 the confidence level is 95 percent and the confidence interval is  $\pm 3.7$ . The telephone survey was administered by twelve interviewers, trained and employed by ECU's Center for Survey Research using a computerized telephone assisted interview (CATI) software system. The mail survey was administered and analyzed by the Center for Survey Research. After validity and reliability were established, data were analyzed using frequencies and cross-tabulations. For all statistical findings, significance levels were set at  $p \leq .05$ . Cross-tabulations were performed on the survey questions using all demographic data points: area (for telephone survey), gender, race, education level, age, household income and retirement status.

## **Demographics**

The participants of this survey were asked a series of demographic questions. The gender of respondents was distributed almost equally, with slightly more women (56 percent) than men (44 percent). Seventy-eight percent of participants were Caucasian and 13 percent were African-American. Only two percent of respondents didn't know their race or refused to answer this question. The majority of respondents fell in the 45 to 54 and 65 and older age groups, both with 23 percent. Regarding retirement status, only 33 percent indicated that they were retired.

Participants were also asked to estimate their annual household income. The majority responded that they didn't know their household income or refused to answer the question (21 percent). The next largest income group included those who reported earning more than \$100,000 per year (17 percent). Regarding home ownership, 80 percent of respondents surveyed owned their homes, whereas 17 percent were renters.

Most of the survey participants reported having high levels of education, with 26 percent being a 4-year college graduate and 22 percent having a post-graduate degree or more. Only two percent of respondents didn't know or refused to answer this question.

A chi-square goodness of fit test showed a significant difference between the number of males and females in the pre-campaign sample compared to the expected number in 2007 Census data for the region. A significant difference was also noted between the pre-campaign sample and the population with regard to the race categories of African-American, Asian, White, Hispanic and Other. Data on age, household income, education levels and household income could not be evaluated using this measure due to overwhelming differences in the categorization of the data in the survey instrument compared to census data categories.

All demographic information can be found in Appendix C.

The most represented county in this survey was Wake (35.1 percent), followed by Durham (8.3 percent), Orange (7.8 percent) and Johnston (7.0 percent). Urban respondents made up 32 percent of the total with suburban and rural respondents making up 47 percent and 21 percent respectively. The county breakdown can be seen in the following table:

**Table 1. County Distribution**

	Frequency	Percent
Alamance	17	2.4%
Camden	1	0.1%
Carteret	2	0.3%
Caswell	1	0.1%
Chatham	23	3.2%
Craven	34	4.8%
Cumberland	3	0.4%
Duplin	3	0.4%
<b>Durham</b>	<b>59</b>	<b>8.3%</b>
Edgecombe	15	2.1%
Franklin	18	2.5%
Granville	12	1.7%
Greene	7	1.0%
Halifax	3	0.4%

	Frequency	Percent
Harnett	18	2.5%
<b>Johnston</b>	<b>50</b>	<b>7.0%</b>
Lee	13	1.8%
Lenoir	23	3.2%
Moore	1	0.1%
Nash	23	3.2%
<b>Orange</b>	<b>56</b>	<b>7.8%</b>
Person	1	0.1%
Pitt	5	0.7%
Randolph	3	0.4%
Sampson	1	0.1%
<b>Wake</b>	<b>251</b>	<b>35.1%</b>
Wayne	38	5.3%
Wilson	33	4.6%

## **Survey Findings**

### ***Section 1: Overall Water Quality***

Participants were asked to rate the overall water quality of rivers, streams, and lakes in their area. Only 15 percent thought the overall water quality in their area was poor. Most perceived it as being fair or good. However, only two percent of participants thought that it was excellent (See Table 2). All data regarding water quality and demographic cross tabulations can be found in Appendix D.

**Table 2. Overall Water Quality**

	<b>Frequency</b>	<b>Percent</b>
Poor	109	15%
<b>Fair</b>	<b>350</b>	<b>49%</b>
Good	211	30%
Excellent	16	2%
Don't Know	24	4%

### ***Section 2: Biggest Source of Water Pollution***

Participants were asked to identify the *biggest* source of water pollution. Most people thought that runoff from farms and agricultural operations (29 percent) and runoff from yards, parking lots, and streets (23 percent) were the biggest contributors to water pollution (See Table 3). There were only seven percent of participants who reported not knowing what contributes to water pollution the most. All data regarding the biggest source of water pollution and demographic cross tabulations can be found in Appendix E.

**Table 3. Overall Biggest Source of Water Pollution**

	<b>Frequency</b>	<b>Percent</b>
Litter	87	12%
Wastewater from industrial plants	115	17%
Wastewater from sewage treatment plants	82	12%
<b>Runoff from yards, parking lots and streets</b>	<b>161</b>	<b>23%</b>
<b>Runoff from farms and agricultural operations</b>	<b>201</b>	<b>29%</b>
Don't know	46	7%

### Section 3: Lawn Care

Participants were then asked a series of questions regarding lawn care. Most survey respondents (80 percent) reported having a lawn that they maintain. When these same respondents were asked how they disposed of grass clippings, the majority (59 percent) reported leaving the clippings in the yard (See Table 4). Mulching and composting – another water protective behavior – was the option chosen by 21.4 percent of respondents. Only one participant cited dumping clippings into a gutter or ditch.

**Table 4. Grass Clipping Disposal**

	Frequency	Percent
Collect them and put them with the garbage	71	12.5%
<b>Leave them on the grass or spread them in the yard</b>	<b>334</b>	<b>59.0%</b>
Dump them in a gutter or ditch	1	0.2%
Pile them in the yard or compost/mulch them	121	21.4%
Other	21	3.7%
I don't mow the yard	18	3.2%

A little over half of the respondents cited using fertilizer on their lawns. The majority of participants said that they fertilize their lawn once a year or less (48 percent) or two to three times per year (43 percent). A troubling six percent report applying fertilizer monthly or every other month, although no grass requires this much fertilizer (see Table 5).

**Table 5. Fertilizer Use**

	Frequency	Percent
Monthly or every other month	21	6%
<b>Two or three times a year</b>	<b>149</b>	<b>43%</b>
<b>Once a year or less</b>	<b>165</b>	<b>48%</b>
Don't know	8	3%

If respondents indicated they fertilized their own yard, they were also asked if anyone ever tested the soil. The majority (67 percent) responded that they did not use soil tests, but 29 percent of respondents did report testing their soil to determine fertilizer needs. All data regarding lawn care and demographic cross tabulations can be found in Appendix F.

**Section 4: Vehicle Maintenance**

In this survey, 95 percent of respondents stated they had a vehicle. When asked how they get their vehicle washed, half of the participants reported taking it to a commercial car wash. Thirty-four percent said they washed their vehicles at home. These 230 “home washers” were asked where they allow the soapy water to flow while they wash their car (See Table 6). The majority (58 percent) let soapy wash water flow into grass, dirt or gravel, while 21 percent allowed soapy water to flow into the street or driveway.

**Table 6. Soapy Wash Water Flow**

	<b>Frequency</b>	<b>Percent</b>
<b>Into the grass, dirt, or gravel</b>	<b>196</b>	<b>58%</b>
Into the street or driveway	69	21%
Varies, sometimes one, sometimes another	24	7%
Don't know	3	1%
Refuse to answer	43	13%

The 95 percent of respondents who reported owning a vehicle were also asked if they changed their own oil. A little more than a quarter (28 percent) reported doing so. Home oil changers dispose of oil in a variety of ways. The monopolizing answer (90 percent) was to take it somewhere to be recycled. Two especially troubling findings were that three percent of respondents put it with the garbage and two percent pour used oil down storm drains, into the yard, or into a ditch (see Table 7). Although these numbers represent a small number of respondents, the finding is troubling: one quart of oil can contaminate one million gallons of drinking water. All data regarding vehicle maintenance and demographic cross tabulations can be found in Appendix G.

**Table 7. Used Oil Disposal**

	<b>Frequency</b>	<b>Percent</b>
Put it with the garbage	6	3%
Pour it down a storm drain, into the yard, or into a ditch	4	2%
Take it somewhere to be recycled	173	90%
Other	8	5%

### ***Section 5: Pet Waste***

The next series of questions dealt with pets and pet waste. Respondents who claimed they had a dog (44 percent,  $N = 311$ ) were asked how often they picked up their pet's waste (See Table 8). The majority of participants fell between two extremes when answering this question. Thirty-six percent said they pick up their pet waste always or almost always, while 34 percent admitted to never picking up pet waste. All data regarding pet waste and demographic cross tabulations can be found in Appendix H.

**Table 8. Pet Waste Pickup**

	<b>Frequency</b>	<b>Percent</b>
<b>Always or almost always</b>	<b>112</b>	<b>36%</b>
Sometimes	60	19%
Rarely	33	11%
<b>Never</b>	<b>105</b>	<b>34%</b>

### ***Section 6: Stormwater Runoff***

Participants were then asked to choose where they think stormwater goes after it goes down a storm drain. The majority of respondents (57 percent) knew that stormwater flows to the closest stream, lake or river (See Table 9). However, 19 percent believed that stormwater receives treatment at a sewage/wastewater treatment plant and 9.5 percent thought it went to a special separate treatment plant. All data regarding stormwater runoff and demographic cross tabulations can be found in Appendix I.

**Table 9. Where Stormwater Goes**

	<b>Frequency</b>	<b>Percent</b>
Sewage/wastewater treatment plant	133	19%
Special separate treatment plant	67	9%
Nearby fields and yards	49	7%
<b>The closest river, stream, or lake</b>	<b>402</b>	<b>57%</b>
Don't know	54	8%

### **Section 7: Media Campaign**

A media campaign was conducted to promote awareness about clean water practices. Participants were asked if they remembered seeing any of these efforts (See Table 10). The majority of respondents did not recall seeing any advertisements about clean water (68 percent). There were, however, 23 percent who did recall seeing an advertisement. Five percent were not sure and four percent reported not watching TV. All data regarding the media campaign and demographic cross tabulations can be found in Appendix J.


**Table 10. Media Campaign – Ad Recall**

	<b>Frequency</b>	<b>Percent</b>
Recalled seeing ads	161	23%
<b>Didn't recall seeing ads</b>	<b>481</b>	<b>68%</b>
Not sure	40	5%
Don't watch TV	27	4%

# Appendix A: Survey Instrument

## Clean Water Education Partnership Survey

Please circle the letter to show your response. Thank you!

1. Are you...
  - a) Male
  - b) Female
2. What county do you live in? \_\_\_\_\_
3. What is your zip code? \_\_\_\_\_
4. Based on your current knowledge, do you think the overall water quality of the rivers, streams, lakes, etc. in your area is...
  - a) Poor
  - b) Fair
  - c) Good
  - d) Excellent
5. The following is a list of possible sources of water pollution. Please tell us which one YOU think is the **biggest** source of water pollution in North Carolina:
  - a) Litter
  - b) Wastewater from industrial plants
  - c) Wastewater from sewage treatment plants
  - d) Runoff from yards, parking lots, and streets
  - e) Runoff from farms and agricultural operations
6. If you had to pick ONE of the following options to describe where rainwater goes **after** it goes down into a storm drain (see picture), would you say that the rainwater drains to....  

  - a) a sewage/wastewater treatment plant
  - b) a separate special treatment plant
  - c) nearby fields and yards
  - d) the nearest stream
7. Do you recall seeing any ads on TV recently about rainwater or stormwater runoff (water that runs off streets and parking lots after it rains) or how the land next to a stream should be maintained?
  - a) Yes
  - b) No
  - c) Not sure
  - d) I don't watch TV
8. Do you have a grass lawn or a yard that you maintain?
  - a) Yes
  - b) No (skip to #13)
9. When you mow the grass, what do you do with the grass clippings?
  - a) Collect them and put them with the garbage
  - b) Leave the clippings on the grass or spread them in the yard
  - c) Dump them in a gutter or ditch
  - d) Pile them in the yard, or compost/mulch them
  - e) Other
  - f) I don't mow
10. Does anyone fertilize your lawn?
  - a) Yes
  - b) No
11. About how often would you say someone fertilizes your lawn?
  - a) Monthly or every other month
  - b) Two or three times a year
  - c) Once a year or less
12. Has anyone ever tested the soil on your lawn to determine how much fertilizer it needs?
  - a) Yes
  - b) No
13. Do you have a car, truck, or other vehicle?
  - a) Yes
  - b) No (skip to #18)

14. How do you get your vehicle washed?
- a) I wash it at home or have it washed at home
  - b) I take it to a commercial car wash
  - c) I take it to a volunteer car wash
  - d) It depends / Other
  - e) I don't wash my vehicle (skip to #16)

15. If/when you wash your vehicle at home, does the dirty washwater flow...
- a) Onto grass, dirt, or gravel
  - b) Onto the street or driveway
  - c) It varies
  - d) Not sure where it goes
  - e) I don't wash my vehicle at home

16. Do you ever change your own oil?
- a) Yes
  - b) No (skip to #18)

17. If you change your own oil, how do you dispose of the old used oil? Do you...
- a) Put it with garbage
  - b) Pour it down a storm drain, into the yard, or into a ditch
  - c) Take it somewhere to be recycled
  - d) Other (specify): \_\_\_\_\_

18. Do you have a dog?
- a) Yes
  - b) No (skip to #20)

19. Do you pick up your dog's waste (from walks or from in the yard)...
- a) Always or almost always
  - b) Sometimes
  - c) Rarely
  - d) Never

*To help us interpret the range of responses we will receive, please tell us a little about yourself. All answers are completely confidential.*

20. Are you retired?
- a) Yes
  - b) No

21. Do you own or rent the place where you live?
- a) Own
  - b) Rent
  - c) Other

22. Which of the following best describes your formal education?
- a) Some high school or less
  - b) High school graduate
  - c) Some vocational or technical school
  - d) Vocational or technical school graduate
  - e) Some college or 2-year college graduate
  - f) 4-Year college graduate
  - g) Post-graduate degree or more

23. Which of these categories best describes your age?
- a) 18-24
  - b) 25-34
  - c) 35-44
  - d) 45-54
  - e) 55-64
  - f) over 65

24. To ensure our survey has a proper representation by race, are you...
- a) Black or African-American
  - b) White or Caucasian
  - c) Asian
  - d) Hispanic or Latino
  - e) Other

25. Which of the following categories best describes your total annual household income before taxes? Remember, this information will only be associated with your other responses to this survey and never with you as an individual.
- a) Less than \$12,000
  - b) \$12,000 to \$25,000
  - c) \$25,000 to \$35,000
  - d) \$35,000 to \$50,000
  - e) \$50,000 to \$75,000
  - f) \$75,000 to \$100,000
  - g) over \$100,000

*Thank you for participating in this important survey! We greatly appreciate your time and assistance.*

To find out more about why we are conducting this survey, call (919) 558-9343 or email [cwep@tjcog.org](mailto:cwep@tjcog.org).

## Appendix B: Zip Codes Included in the Survey

27207	BEAR CREEK
27208	BENNETT
27231	CEDAR GROVE
27243	EFLAND
27252	GOLDSTON
27278	HILLSBOROUGH
27302	MEBANE
27312	PITTSBORO
27314	PROSPECT HILL
27344	SILER CITY
27501	ANGIER
27502	APEX
27503	BAHAMA
27504	BENSON
27510	CARRBORO
27511	CARY
27513	CARY
27514	CHAPEL HILL
27516	CHAPEL HILL
27517	CHAPEL HILL
27520	CLAYTON
27524	FOUR OAKS
27526	FUQUAY VARINA
27529	GARNER
27530	GOLDSBORO
27531	GOLDSBORO
27534	GOLDSBORO
27540	HOLLY SPRINGS
27541	HURDLE MILLS
27542	KENLY
27545	KNIGHTDALE
27557	MIDDLESEX
27559	MONCURE
27560	MORRISVILLE
27562	NEW HILL
27565	OXFORD
27569	PRINCETON
27571	ROLESVILLE
27572	ROUGEMONT
27576	SELMA
27577	SMITHFIELD
27587	WAKE FOREST
27591	WENDELL
27592	WILLOW SPRING
27597	ZEBULON

27604	RALEIGH
27605	RALEIGH
27606	RALEIGH
27607	RALEIGH
27608	RALEIGH
27609	RALEIGH
27610	RALEIGH
27612	RALEIGH
27613	RALEIGH
27614	RALEIGH
27615	RALEIGH
27616	RALEIGH
27617	RALEIGH
27695	RALEIGH
27701	DURHAM
27703	DURHAM
27704	DURHAM
27705	DURHAM
27707	DURHAM
27709	DURHAM
27712	DURHAM
27713	DURHAM
27801	ROCKY MOUNT
27803	ROCKY MOUNT
27804	ROCKY MOUNT
27807	BAILEY
27809	BATTLEBORO
27816	CASTALIA
27822	ELM CITY
27830	FREMONT
27851	LUCAMA
27856	NASHVILLE
27863	PIKEVILLE
27880	SIMS
27882	SPRING HOPE
27886	TARBORO
27891	WHITAKERS
27893	WILSON
27896	WILSON
28307	FORT BRAGG
28308	POPE A F B
28333	DUDLEY
28365	MOUNT OLIVE
28390	SPRING LAKE
28501	KINSTON

27601	RALEIGH
27603	RALEIGH
27604	RALEIGH
27605	RALEIGH
27606	RALEIGH
27607	RALEIGH
27608	RALEIGH
27609	RALEIGH
27610	RALEIGH
27612	RALEIGH
27613	RALEIGH
27614	RALEIGH
27615	RALEIGH
27616	RALEIGH
27617	RALEIGH
27695	RALEIGH
27701	DURHAM
27703	DURHAM
27704	DURHAM
27705	DURHAM
27707	DURHAM
27709	DURHAM
27712	DURHAM
28560	NEW BERN
28562	NEW BERN
28578	SEVEN SPRINGS
28560	NEW BERN
27713	DURHAM
27801	ROCKY MOUNT
27803	ROCKY MOUNT
27713	DURHAM
27801	ROCKY MOUNT
27816	CASTALIA
27822	ELM CITY
27830	FREMONT
27851	LUCAMA
27856	NASHVILLE
27863	PIKEVILLE
27880	SIMS
27882	SPRING HOPE
27886	TARBORO
27891	WHITAKERS
27893	WILSON
27804	ROCKY MOUNT
27807	BAILEY

28504	KINSTON
28532	HAVELOCK
28551	LA GRANGE
27713	DURHAM
27801	ROCKY MOUNT
27803	ROCKY MOUNT
27804	ROCKY MOUNT
27807	BAILEY
27809	BATTLEBORO
27816	CASTALIA
27822	ELM CITY
27830	FREMONT
27851	LUCAMA
27856	NASHVILLE
27863	PIKEVILLE
27880	SIMS
27882	SPRING HOPE
27886	TARBORO
27891	WHITAKERS
27893	WILSON
27896	WILSON
28307	FORT BRAGG
28308	POPE A F B
28333	DUDLEY
28365	MOUNT OLIVE
28390	SPRING LAKE
28501	KINSTON
28504	KINSTON
28532	HAVELOCK
28551	LA GRANGE
28560	NEW BERN
28562	NEW BERN
28578	SEVEN SPRINGS
27896	WILSON
28307	FORT BRAGG
28308	POPE A F B
28333	DUDLEY
28365	MOUNT OLIVE
28390	SPRING LAKE
28501	KINSTON
28504	KINSTON
28532	HAVELOCK
28551	LA GRANGE
28560	NEW BERN
28562	NEW BERN
28578	SEVEN SPRINGS

## Appendix C: Demographic Data

### C1. Area of Residence (*Telephone Survey Only*)

	Frequency	Percent
Urban	151	32%
<b>Suburban</b>	<b>223</b>	<b>47%</b>
Rural	98	21%

### C2. Gender

	Frequency	Percent
Women	306	44%
<b>Men</b>	<b>383</b>	<b>56%</b>

### C3. Are you retired?

	Frequency	Percent
Yes	76	33%
<b>No</b>	<b>156</b>	<b>67%</b>

### C4. Home Ownership

	Frequency	Percent
<b>Own</b>	<b>572</b>	<b>80%</b>
Rent	119	17%
Other	6	1%
Don't know/ Refuse to answer	13	2%

### C5. Education Level

	Frequency	Percent
Some high school or less	36	5%
High school graduate	118	17%
Some vocational or technical school	25	4%
Vocational or technical school graduate	44	6%
Some college or 2-year college graduate	128	18%
<b>4-Year college graduate</b>	<b>185</b>	<b>26%</b>
Post-graduate degree or more	156	22%
Don't know/Refuse to answer	12	2%

**C6. Age**

	<b>Frequency</b>	<b>Percent</b>
18-24	33	5%
25-34	74	10%
35-44	122	17%
<b>45-54</b>	<b>161</b>	<b>23%</b>
55-64	141	20%
<b>Over 65</b>	<b>166</b>	<b>23%</b>
Don't know/ Refuse to answer	12	2%

**C7. Race/Ethnicity**

	<b>Frequency</b>	<b>Percent</b>
Black or African-American	94	13%
Asian	9	1%
<b>White</b>	<b>548</b>	<b>78%</b>
Hispanic or Latino	26	4%
Other	15	2%
Don't know/ Refuse to answer	14	2%

**C8. Annual household income**

	<b>Frequency</b>	<b>Percent</b>
Less than \$12,000	38	5%
\$12,000 to \$25,000	52	8%
\$25,000 to \$35,000	63	9%
\$35,000 to \$50,000	80	12%
\$50,000 to \$75,000	97	14%
\$75,000 to \$100,000	94	14%
Over \$100,000	118	17%
<b>Don't know/ Refuse to answer</b>	<b>143</b>	<b>21%</b>

## Appendix D: Overall Water Quality Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### D1. Opinions of overall water quality by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
Poor	6	14	9	14	19	21
Fair	55	51	53	50	52	42
Good	27	30	35	32	24	29
Excellent	6	1	1	2	1	4
Don't Know	6	4	2	2	4	4

### D2. Opinions of overall water quality by Area

	Urban	Suburban	Rural
Poor	14	16	25
Fair	44	45	45
Good	34	31	23
Excellent	2	3	3
Don't Know	6	5	4

### D3. Opinions of overall water quality by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Poor	17	20	16	21	17	10	14
Fair	59	48	52	41	50	48	52
Good	21	26	28	34	28	38	25
Excellent	3	2	---	2	3	2	3
Don't Know	---	4	4	2	2	2	6

### D4. Opinions of overall water quality by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Poor	22	25	15	24	8	13	13	15
Fair	43	47	45	37	65	60	50	39
Good	35	26	29	34	25	25	33	32
Excellent	0	0	3	1	1	1	4	4
Don't Know	0	2	8	4	1	1	0	10

**D5. Opinions of overall water quality by Home Ownership**

	<b>Own</b>	<b>Rent</b>	<b>Other</b>
<b>Poor</b>	15	16	33
<b>Fair</b>	50	48	17
<b>Good</b>	29	31	33
<b>Excellent</b>	2	2	17
<b>Don't Know</b>	4	3	---

**D6. Opinions of overall water quality by Race**

	<b>African American</b>	<b>Caucasian</b>	<b>Asian</b>	<b>Hispanic</b>	<b>Other</b>	<b>Refuse to Answer</b>
<b>Poor</b>	20	14	11	23	20	14
<b>Fair</b>	44	50	34	58	47	50
<b>Good</b>	30	30	33	19	27	21
<b>Excellent</b>	---	3	11	---	---	---
<b>Don't Know</b>	6	3	11	---	6	15

**D7. Opinions of overall water quality by Gender**

	<b>Female</b>	<b>Male</b>
<b>Poor</b>	16	14
<b>Fair</b>	52	49
<b>Good</b>	29	31
<b>Excellent</b>	2	2
<b>Don't Know</b>	1	4

**D8. Opinions of overall water quality by Retired**

	<b>Retired</b>	<b>Not Retired</b>
<b>Poor</b>	17	9
<b>Fair</b>	53	62
<b>Good</b>	29	28
<b>Excellent</b>	1	1

**D9. Opinions of overall water quality by Media Ad Recall**

	<b>Yes</b>	<b>No</b>
<b>Poor</b>	14	16
<b>Fair</b>	51	50
<b>Good</b>	31	27
<b>Excellent</b>	2	3
<b>Don't Know</b>	2	4

## Appendix E: Biggest Source of Water Pollution Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

**E1. Biggest Source of Water Pollution by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Litter	30	23	15	9	9	10
Wastewater from industrial plants	18	15	15	17	16	19
Wastewater from sewage treatment plants	6	18	9	13	7	14
Runoff that has flowed over yards, parking lots, etc.	28	15	30	29	20	18
Runoff from farms and agricultural operations	6	25	28	27	42	29
Don't Know	12	4	3	5	6	10

**E2. Biggest Source of Water Pollution by Area**

	Urban	Suburban	Rural
Litter	16	14	12
Wastewater from industrial plants	20	24	15
Wastewater from sewage treatment plants	11	12	17
Runoff that has flowed over yards, parking lots, etc.	18	17	14
Runoff from farms and agricultural operations	28	22	30
Don't Know	7	11	12

**E3. Biggest Source of Water Pollution by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Litter	9	20	12	16	15	13	4
Wastewater from industrial plants	25	20	8	14	18	19	11
Wastewater from sewage treatment plants	15	12	16	16	10	12	9
Runoff that has flowed over yards, parking lots, etc.	21	18	16	19	25	26	27
Runoff from farms and agricultural operations	18	22	40	30	26	26	42
Don't Know	12	8	8	5	6	4	7

**E4. Biggest Source of Water Pollution by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Litter	19	20	13	12	15	11	7	14
Wastewater from industrial plants	17	20	17	15	19	11	10	22
Wastewater from sewage treatment plants	6	16	17	16	10	16	7	10
Runoff that has flowed over yards, parking lots, etc.	25	12	20	22	19	28	37	16
Runoff from farms and agricultural operations	19	14	27	29	36	32	36	27
Don't Know	14	18	6	6	1	2	3	11

**E5. Biggest Source of Water Pollution by Home Ownership**

	Own	Rent	Other
Litter	11	18	17
Wastewater from industrial plants	16	20	33
Wastewater from sewage treatment plants	11	14	17
Runoff that has flowed over yards, parking lots, etc.	24	23	17
Runoff from farms and agricultural operations	33	14	16
Don't Know	5	11	---

**E6. Biggest Source of Water Pollution by Race**

	African American	Caucasian	Asian	Hispanic	Other	Refuse to Answer
Litter	19	11	13	31	20	7
Wastewater from industrial plants	15	18	13	15	13	---
Wastewater from sewage treatment plants	15	11	13	4	27	29
Runoff that has flowed over yards, parking lots, etc.	19	25	---	15	13	14
Runoff from farms and agricultural operations	28	30	25	15	20	21
Don't Know	4	5	36	20	7	29

**E7. Biggest Source of Water Pollution by Gender**

	Women	Men
Litter	7	16
Wastewater from industrial plants	13	19
Wastewater from sewage treatment plants	13	12
Runoff that has flowed over yards, parking lots, etc.	28	20
Runoff from farms and agricultural operations	34	25
Don't Know	5	8

**E8. Biggest Source of Water Pollution by Retired**

	<b>Retired</b>	<b>Not Retired</b>
<b>Litter</b>	7	10
<b>Wastewater from industrial plants</b>	9	8
<b>Wastewater from sewage treatment plants</b>	12	9
<b>Runoff that has flowed over yards, parking lots, etc.</b>	32	40
<b>Runoff from farms and agricultural operations</b>	40	33

**E9. Biggest Source of Water Pollution by Media Ad Recall**

	<b>Did Recall</b>	<b>Did Not Recall</b>
<b>Litter</b>	12	13
<b>Wastewater from industrial plants</b>	12	19
<b>Wastewater from sewage treatment plants</b>	11	12
<b>Runoff that has flowed over yards, parking lots, etc.</b>	30	19
<b>Runoff from farms and agricultural operations</b>	31	29
<b>Don't Know</b>	4	8

Whether or not people recalled the media campaign played a significant role regarding opinions of where wastewater comes from,  $\chi^2 = 12.047$ ,  $N = 626$ ,  $p = .034$ . Those who recalled the media messages were more likely to cite the source as runoff from yards, parking lots and streets.

## Appendix F: Lawn Care Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

**F1. What do you do with the grass clippings by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Put them in the garbage	24	15	14	11	11	13
Leave them in the yard	43	65	57	62	65	53
Dump them into a gutter or a ditch	---	---	---	---	---	---
Mulch/compost them	10	14	24	21	20	25
Other/not sure	14	2	3	4	2	4
I don't mow the yard	9	4	2	2	2	5

**F2. What do you do with the grass clippings by Area**

	Urban	Suburban	Rural
Put them in the garbage	16	11	17
Leave them in the yard	48	57	50
Dump them into a gutter or a ditch	---	1	---
Mulch/compost them	31	24	29
Other/not sure	2	4	3
I don't mow the yard	3	3	1

**F3. What do you do with the grass clippings by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Put them in the garbage	27	15	8	11	9	10	14
Leave them in the yard	50	57	68	69	64	58	57
Dump them into a gutter or a ditch	---	---	---	---	1	---	---
Mulch/compost them	9	20	16	14	24	26	21
Other/not sure	9	5	---	6	2	3	3
Refuse to Answer	5	3	8	---	---	3	5

**F4. What do you do with the grass clippings by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Put them in the garbage	18	27	12	11	13	7	12	14
Leave them in the yard	64	40	61	62	71	63	58	51
Dump them into a gutter or a ditch	---	---	---	---	---	1	---	---
Mulch/compost them	5	21	20	16	14	27	22	29
Other/not sure	13	3	---	8	1	1	5	3
I don't mow the yard	---	9	7	3	1	1	3	3

**F5. What do you do with the grass clippings by Home Ownership**

	Own	Rent
Put them in the garbage	12	19
Leave them in the yard	60	51
Dump them into a gutter or a ditch	---	---
Mulch/compost them	22	14
Other/not sure	3	9
I don't mow the lawn	3	7

**F6. What do you do with the grass clippings by Race**

	African American	Caucasian	Asian	Hispanic	Other	Refuse to Answer
Put them in the garbage	17	10	---	50	22	20
Leave them in the yard	47	63	100	31	45	20
Dump them into a gutter or a ditch	---	---	---	---	---	---
Mulch/compost them	24	21	---	13	33	40
Other/not sure	9	3	---	---	---	---
I don't mow the yard	3	3	---	6	---	20

**F7. What do you do with the grass clippings by Gender**

	Women	Men
Put them in the garbage	11	14
Leave them in the yard	62	56
Dump them into a gutter or a ditch	---	---
Mulch/compost them	21	23
Other/not sure	3	4
I don't mow the yard	3	3

**F8. What do you do with the grass clippings by Retired**

	Retired	Not Retired
Put them in the garbage	8	12
Leave them in the yard	67	69
Dump them into a gutter or a ditch	---	---
Mulch/compost them	13	12
Other/not sure	6	4
I don't mow the yard	6	3

**F9. What do you do with the grass clippings by Media Ad Recall**

	Did Recall	Did Not Recall
Put them in the garbage	10	14
Leave them in the yard	62	57
Dump them into a gutter or a ditch	---	---
Mulch/compost them	22	22
Other/not sure	2	4
I don't mow the yard	4	3

**F10. Do you fertilize your lawn by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Yes	20	32	52	54	57	54
No	80	68	48	46	43	46

**F11. Do you fertilize your lawn by Area**

	Urban	Suburban	Rural
Yes	62	49	36
No	38	51	64

**F12. Do you fertilize your lawn by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Yes	24	44	56	43	49	58	60
No	76	56	44	57	51	42	40

**F13. Do you fertilize your lawn by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Yes	29	21	44	42	54	56	69	52
No	71	79	56	58	46	44	31	48

**F14. Do you fertilize your lawn by Home Ownership**

	Own	Rent
Yes	55	26
No	45	74

**F15. Do you fertilize your lawn by Race**

	African American	Caucasian	Asian	Hispanic	Other	Refuse to Answer
Yes	52	53	50	25	---	50
No	48	47	50	75	100	50

**F16. Do you fertilize your lawn by Gender**

	Women	Men
Yes	52	51
No	48	49

**F17. Do you fertilize your lawn by Retired**

	Retired	Not Retired
Yes	60	55
No	40	45

**F18. Do you fertilize your lawn by Media Ad Recall**

	Did Recall	Did Not Recall
Yes	55	52
No	45	48

**F19. Frequency of fertilizer usage by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Monthly or every other month	---	5	3	10	4	7
Two/three times a year	40	47	48	41	43	40
Once a year or less	40	43	47	49	48	52
Don't Know	20	5	2	---	5	1

**F20. Frequency of fertilizer usage by Area**

	Urban	Suburban	Rural
Monthly or every other month	13	2	4
Two/three times a year	48	44	41
Once a year or less	32	50	52
Don't Know	7	4	3

**F21. Frequency of fertilizer usage by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Monthly or every other month	20	4	---	5	6	7	6
Two/three times a year	---	27	38	42	50	45	54
Once a year or less	80	67	50	53	44	45	39
Don't Know	---	2	12	---	---	3	1

**F22. Frequency of fertilizer usage by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Monthly or every other month	11	12	5	6	4	3	9	5
Two/three times a year	22	38	18	44	48	46	55	34
Once a year or less	67	28	73	47	48	49	33	56
Don't Know	---	12	4	3	---	2	3	5

**F23. Frequency of fertilizer usage by Home Ownership**

	Own	Rent
Monthly or every other month	6	5
Two/three times a year	44	35
Once a year or less	48	50
Don't Know	2	10

**F24. Frequency of fertilizer usage by Race**

	African American	Caucasian	Asian	Hispanic	Refuse to Answer
Monthly or every other month	10	6	---	---	---
Two/three times a year	40	44	50	25	---
Once a year or less	43	49	50	50	100
Don't Know	7	1	---	25	---

**F25. Frequency of fertilizer usage by Gender**

	Women	Men
Monthly or every other month	9	4
Two/three times a year	46	39
Once a year or less	44	53
Don't Know	1	4

**F26. Frequency of fertilizer usage by Retired**

	Retired	Not Retired
Monthly or every other month	6	6
Two/three times a year	46	40
Once a year or less	48	54

**F27. Frequency of fertilizer usage by Media Ad Recall**

	Did Recall	Did Not Recall
Monthly or every other month	6	7
Two/three times a year	49	40
Once a year or less	45	53

**F28. Soil Testing by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Yes	29	12	36	30	28	29
No	43	76	62	70	71	66
Don't Know	28	12	2	---	1	5

**F29. Soil Testing by Area**

	Urban	Suburban	Rural
Yes	37	31	33
No	53	63	60
Don't Know	10	6	7

**F30. Soil Testing by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Yes	---	19	33	33	31	33	32
No	100	79	61	67	66	62	64
Don't Know	---	2	6	---	3	5	4

**F31. Soil Testing by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Yes	9	33	22	24	17	28	45	30
No	82	67	71	74	81	68	54	63
Don't Know	9	---	7	2	2	4	1	7

**F32. Soil Testing by Home Ownership**

	Own	Rent
Yes	30	11
No	67	78
Don't Know	3	11

**F33. Soil Testing by Race**

	<b>African American</b>	<b>Caucasian</b>	<b>Asian</b>	<b>Hispanic</b>	<b>Other</b>	<b>Refuse to Answer</b>
<b>Yes</b>	18	31	---	---	---	25
<b>No</b>	82	65	100	75	100	75
<b>Don't Know</b>	---	4	---	25	---	---

**F34. Soil Testing by Gender**

	<b>Women</b>	<b>Men</b>
<b>Yes</b>	30	26
<b>No</b>	68	69
<b>Don't Know</b>	2	5

**F35. Soil Testing by Retired**

	<b>Retired</b>	<b>Not Retired</b>
<b>Yes</b>	23	27
<b>No</b>	77	73

**F36. Soil Testing by Media Ad Recall**

	<b>Did Recall</b>	<b>Did Not Recall</b>
<b>Yes</b>	36	29
<b>No</b>	63	66
<b>Don't Know</b>	1	5

## Appendix G: Vehicle Maintenance Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### G1. Vehicle Washing by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
At home	33	32	33	41	37	28
Take it to a car wash	52	57	47	43	57	52
Take it to a volunteer car wash	4	1	2	2	1	3
Other	---	1	10	5	4	5
I don't wash my vehicle	11	9	8	9	1	12

### G2. Vehicle Washing by Area

	Urban	Suburban	Rural
At home	27	33	36
Take it to a car wash	59	53	52
Take it to a volunteer car wash	4	1	1
Other	2	2	6
I don't wash my vehicle	8	11	5

### G3. Vehicle Washing by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
At home	30	42	24	36	42	29	31
Take it to a car wash	57	50	52	52	48	51	49
Take it to a volunteer car wash	---	2	8	---	2	2	3
Other	---	3	8	7	2	6	8
I don't wash my vehicle	13	3	8	5	6	12	9

### G4. Vehicle Washing by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
At home	41	29	35	32	40	38	29	34
Take it to a car wash	44	61	46	49	48	50	53	50
Take it to a volunteer car wash	4	---	2	3	2	1	3	2
Other	---	---	11	6	6	3	9	2
I don't wash my vehicle	11	10	6	10	4	8	6	12

**G5. Vehicle Washing by Home Ownership**

	Own	Rent
At home	36	25
Take it to a car wash	49	59
Take it to a volunteer car wash	2	3
Other	6	2
I don't wash my vehicle	7	11

**G6. Vehicle Washing by Race**

	African American	Caucasian	Asian	Hispanic	Other	Refuse to Answer
At home	38	35	---	32	42	9
Take it to a car wash	51	50	75	64	33	64
Take it to a volunteer car wash	2	2	---	4	---	9
Other	5	5	13	---	---	---
I don't wash my vehicle	4	8	12	---	25	18

**G7. Vehicle Washing by Gender**

	Women	Men
At home	38	33
Take it to a car wash	48	51
Take it to a volunteer car wash	1	3
Other	8	3
I don't wash my vehicle	5	10

**G8. Vehicle Washing by Retired**

	Retired	Not Retired
At home	40	40
Take it to a car wash	40	42
Take it to a volunteer car wash	3	1
Other	8	12
I don't wash my vehicle	9	5

**G9. Vehicle Washing by Media Ad Recall**

	Did Recall	Did Not Recall
At home	41	33
Take it to a car wash	47	54
Take it to a volunteer car wash	1	2
Other	6	4
I don't wash my vehicle	5	7

**G10. Soapy Wash Water Flow by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Into the grass, dirt, or gravel	39	39	57	60	75	51
Into the street or driveway	39	36	24	19	17	15
Varies	15	7	11	7	---	11
Don't Know	---	4	---	---	---	3
Refuse to Answer	7	14	8	14	8	20

**G11. Soapy Wash Water Flow by Area**

	Urban	Suburban	Rural
Into the grass, dirt, or gravel	57	75	70
Into the street or driveway	33	15	12
Varies	10	10	9
Don't Know	---	---	9

**G12. Soapy Wash Water Flow by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Into the grass, dirt, or gravel	50	76	67	57	58	54	56
Into the street or driveway	20	16	22	17	21	24	22
Varies	10	4	---	13	9	6	7
Don't Know	---	---	---	---	3	---	1
Refuse to Answer	20	4	11	13	9	16	14

**G13. Soapy Wash Water Flow by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Into the grass, dirt, or gravel	50	47	78	51	63	62	51	67
Into the street or driveway	22	17	11	19	18	22	24	24
Varies	21	18	4	14	3	4	8	7
Don't Know	---	6	---	---	2	---	---	2
Refuse to Answer	7	12	7	16	14	12	17	---

**G14. Soapy Wash Water Flow by Home Ownership**

	Own	Rent
Into the grass, dirt, or gravel	59	50
Into the street or driveway	21	18
Varies	7	12
Don't Know	1	3
Refuse to Answer	12	17

**G15. Soapy Wash Water Flow by Race**

	African American	Caucasian	Asian	Hispanic	Other	Refuse to Answer
Into the grass, dirt, or gravel	60	59	---	57	60	100
Into the street or driveway	20	20	50	43	40	---
Varies	7	8	---	---	---	---
Don't Know	---	1	---	---	---	---
Refuse to Answer	13	12	50	---	---	---

**G16. Soapy Wash Water Flow by Gender**

	Women	Men
Into the grass, dirt, or gravel	62	54
Into the street or driveway	16	25
Varies	9	6
Don't Know	1	1
Refuse to Answer	12	14

**G17. Soapy Wash Water Flow by Retired**

	Retired	Not Retired
Into the grass, dirt, or gravel	52	50
Into the street or driveway	14	25
Varies	7	5
Don't Know	27	20

**G18. Soapy Wash Water Flow by Media Ad Recall**

	Did Recall	Did Not Recall
Into the grass, dirt, or gravel	64	56
Into the street or driveway	15	23
Varies	9	7
Refuse to Answer	12	14

**G19. Do you change your own oil by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Yes	23	35	30	34	29	19
No	77	65	70	66	71	81

**G20. Do you change our own oil by Area**

	Urban	Suburban	Rural
Yes	22	25	26
No	78	75	74

**G21. Do you change your own oil by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
<b>Yes</b>	30	34	44	41	31	22	22
<b>No</b>	70	66	56	59	69	78	78

**G22. Do you change your own oil by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
<b>Yes</b>	35	33	31	25	33	35	26	18
<b>No</b>	65	67	69	75	67	65	74	82

**G23. Do you change your own oil by Home Ownership**

	Own	Rent
<b>Yes</b>	28	33
<b>No</b>	72	67

**G24. Do you change your own oil by Race**

	African American	Caucasian	Asian	Hispanic	Other	Refuse to Answer
<b>Yes</b>	24	29	12	38	33	9
<b>No</b>	76	71	88	62	67	91

**G25. Do you change our own oil by Gender**

	Women	Men
<b>Yes</b>	38	20
<b>No</b>	62	80

**G26. Do you change our own oil by Retired**

	Retired	Not Retired
<b>Yes</b>	39	35
<b>No</b>	61	65

**G27. Do you change our own oil by Media Ad Recall**

	Did Recall	Did Not Recall
<b>Yes</b>	35	25
<b>No</b>	65	75

This difference is significant...,  $\chi^2 = 4.982$ ,  $N = 607$ ,  $p = .026$ .

**G28. Disposal of used oil by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Put it with other garbage	---	4	---	8	---	3
Pour it down a storm drain	43	---	---	2	---	---
Take it to be recycled	43	92	94	87	95	93
Other	---	4	6	3	5	4
Don't Know	14	---	---	---	---	---

**G29. Disposal of used oil by Area**

	Urban	Suburban	Rural
Put it with other garbage	6	4	4
Pour it down a storm drain	6	---	---
Take it to be recycled	88	92	92
Other	---	2	4
Don't Know	---	2	---

**G30. Disposal of used oil by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Put it with other garbage	12	3	9	---	3	3	3
Pour it down a storm drain	---	3	---	---	7	---	---
Take it to be recycled	88	89	91	94	80	95	97
Other	---	3	---	6	10	2	---
Don't Know	---	2	---	---	---	---	---

**G31. Disposal of used oil by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Put it with other garbage	10	6	6	5	---	---	---	8
Pour it down a storm drain	30	6	---	---	---	---	---	---
Take it to be recycled	50	88	83	90	97	94	94	92
Other	---	---	11	5	3	6	6	---
Don't Know	10	---	---	---	---	---	---	---

**G32. Disposal of used oil by Home Ownership**

	Own	Rent
Put it with other garbage	3	6
Pour it down a storm drain	---	12
Take it to be recycled	94	76
Other	3	6

**G33. Disposal of used oil by Race**

	African American	Caucasian	Asian	Hispanic	Other	Refuse to Answer
Put it with other garbage	15	1	---	---	25	---
Pour it down a storm drain	5	2	---	---	---	---
Take it to be recycled	65	94	100	100	75	100
Other	15	3	---	---	---	---

**G34. Disposal of used oil by Gender**

	Men	Women
Put it with other garbage	5	3
Pour it down a storm drain	3	1
Take it to be recycled	87	92
Other	4	4
Don't Know	1	---

**G35. Disposal of used oil by Retired**

	Retired	Not Retired
Put it with other garbage	---	2
Pour it down a storm drain	---	2
Take it to be recycled	89	90
Other	11	6

**G36. Disposal of used oil by Media Ad Recall**

	Did Recall	Did Not Recall
Put it with other garbage	2	4
Pour it down a storm drain	---	2
Take it to be recycled	94	89
Other	4	5

## Appendix H: Pet Waste Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### H1. Pet Waste Pickup by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
<b>Always</b>	29	29	34	36	38	44
<b>Sometimes</b>	24	29	13	19	21	20
<b>Rarely</b>	6	6	11	16	9	---
<b>Never</b>	41	36	42	29	32	36

### H2. Pet Waste Pickup by Area

	Urban	Suburban	Rural
<b>Always</b>	47	32	37
<b>Sometimes</b>	15	18	26
<b>Rarely</b>	15	11	2
<b>Never</b>	23	39	35

### H3. Pet Waste Pickup by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
<b>Always</b>	42	31	38	32	45	28	41
<b>Sometimes</b>	42	26	---	14	15	20	17
<b>Rarely</b>	8	2	---	18	5	17	15
<b>Never</b>	8	41	62	36	35	35	27

### H4. Pet Waste Pickup by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
<b>Always</b>	15	28	15	43	19	33	37	56
<b>Sometimes</b>	15	22	23	16	26	25	15	18
<b>Rarely</b>	8	6	8	3	10	13	16	13
<b>Never</b>	62	44	54	38	45	29	32	13

**H5. Pet Waste Pickup by Home Ownership**

	Own	Rent
Always	37	33
Sometimes	19	22
Rarely	11	7
Never	33	38

**H6. Pet Waste Pickup by Race**

	African American	Caucasian	Hispanic	Other	Refuse to Answer
Always	39	36	25	20	50
Sometimes	22	19	38	20	17
Rarely	14	9	12	20	33
Never	25	36	25	40	---

**H7. Pet Waste Pickup by Gender**

	Women	Men
Always	29	42
Sometimes	23	17
Rarely	9	10
Never	39	31

**H8. Pet Waste Pickup by Retired**

	Retired	Not Retired
Always	42	32
Sometimes	19	20
Rarely	8	11
Never	31	37

**H9. Pet Waste Pickup by Media Ad Recall**

	Did Recall	Did Not Recall
Always	28	39
Sometimes	24	18
Rarely	13	9
Never	35	34

## Appendix I: Where Storm Water Runoff Goes Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### I1. Where Stormwater Runoff Goes by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
A sewage/wastewater treatment plant	27	21	14	20	20	19
A special separate treatment plant	6	10	10	7	12	9
Nearby fields and yards	---	7	8	9	7	6
The closest river, stream, or lake	55	54	61	60	54	56
Don't Know	12	8	7	4	7	10

### I2. Where Stormwater Runoff Goes by Area

	Urban	Suburban	Rural
A sewage/wastewater treatment plant	19	16	12
A special separate treatment plant	11	12	15
Nearby fields and yards	7	9	5
The closest river, stream, or lake	54	52	53
Don't Know	9	11	15

### I3. Where Stormwater Runoff Goes by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
A sewage/ wastewater treatment plant	17	14	24	27	20	20	20
A special separate treatment plant	17	9	4	9	10	11	7
Nearby fields and yards	5	12	12	5	5	6	4
The closest river, stream, or lake	50	50	56	57	58	56	65
Don't Know	11	15	4	2	7	7	4

### I4. Where Stormwater Runoff Goes by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
A sewage/wastewater treatment plant	32	21	23	27	24	16	16	8
A special separate treatment plant	22	12	11	5	13	8	8	8
Nearby fields and yards	8	4	8	8	5	5	8	9
The closest river, stream, or lake	27	48	52	48	56	70	67	58
Don't Know	11	15	6	12	2	1	1	17

**15. Where Stormwater Runoff Goes by Home Ownership**

	<b>Own</b>	<b>Rent</b>	<b>Other</b>
<b>A sewage/wastewater treatment plant</b>	18	25	33
<b>A special separate treatment plant</b>	9	8	---
<b>Nearby fields and yards</b>	7	8	---
<b>The closest river, stream, or lake</b>	60	47	50
<b>Don't Know</b>	6	12	17

**16. Where Stormwater Runoff Goes by Race**

	<b>African American</b>	<b>Caucasian</b>	<b>Asian</b>	<b>Hispanic</b>	<b>Other</b>	<b>Refuse to Answer</b>
<b>A sewage/wastewater treatment plant</b>	28	19	29	---	7	---
<b>A special separate treatment plant</b>	12	9	---	15	7	7
<b>Nearby fields and yards</b>	4	7	---	12	7	7
<b>The closest river, stream, or lake</b>	46	59	57	58	72	57
<b>Don't Know</b>	10	6	14	15	7	29

**17. Where Stormwater Runoff Goes by Gender**

	<b>Women</b>	<b>Men</b>
<b>A sewage/wastewater treatment plant</b>	13	24
<b>A special separate treatment plant</b>	11	9
<b>Nearby fields and yards</b>	5	9
<b>The closest river, stream, or lake</b>	68	48
<b>Don't Know</b>	3	10

**18. Where Stormwater Runoff Goes by Retired**

	<b>Retired</b>	<b>Not Retired</b>
<b>A sewage/wastewater treatment plant</b>	19	27
<b>A special separate treatment plant</b>	3	5
<b>Nearby fields and yards</b>	3	7
<b>The closest river, stream, or lake</b>	75	61

**19. Where Stormwater Runoff Goes by Media Ad Recall**

	<b>Did Recall</b>	<b>Did Not recall</b>
<b>A sewage/wastewater treatment plant</b>	17	19
<b>A special separate treatment plant</b>	7	10
<b>Nearby fields and yards</b>	6	7
<b>The closest river, stream, or lake</b>	64	55
<b>Don't Know</b>	6	9

## Appendix J: Media Campaign (Ad Recall) Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### J1. Ad Recall by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
<b>Yes</b>	6	16	22	25	26	25
<b>No</b>	85	80	63	63	68	67
<b>Not Sure</b>	3	1	11	6	4	6
<b>Don't Watch TV</b>	6	3	4	6	2	2

### J2. Ad Recall by Area

	Urban	Suburban	Rural
<b>Yes</b>	17	19	22
<b>No</b>	77	75	76
<b>Not Sure</b>	3	3	---
<b>Don't Watch TV</b>	3	3	2

### J3. Ad Recall by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
<b>Yes</b>	31	23	24	20	26	27	14
<b>No</b>	63	72	72	69	63	63	76
<b>Not Sure</b>	6	3	4	11	7	7	3
<b>Don't Watch TV</b>	---	2	---	---	4	3	7

### J4. Ad Recall by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
<b>Yes</b>	36	14	22	20	25	29	22	20
<b>No</b>	56	79	62	66	66	67	70	72
<b>Not Sure</b>	6	6	10	9	3	3	5	5
<b>Don't Watch TV</b>	2	1	6	5	6	1	3	3

### J5. Ad Recall by Home Ownership

	Own	Rent	Other
<b>Yes</b>	23	21	17
<b>No</b>	68	68	83
<b>Not Sure</b>	5	8	---
<b>Don't Watch TV</b>	4	3	---

**J6. Ad Recall by Race**

	<b>African American</b>	<b>Caucasian</b>	<b>Asian</b>	<b>Hispanic</b>	<b>Other</b>	<b>Refuse to Answer</b>
<b>Yes</b>	23	24	11	20	13	7
<b>No</b>	69	67	67	80	67	86
<b>Not Sure</b>	5	6	11	---	7	---
<b>Don't Watch TV</b>	3	3	11	---	13	7

**J7. Ad Recall by Gender**

	<b>Women</b>	<b>Men</b>
<b>Yes</b>	28	18
<b>No</b>	63	73
<b>Not Sure</b>	6	5
<b>Don't Watch TV</b>	3	4

**J8. Ad Recall by Retired**

	<b>Retired</b>	<b>Not Retired</b>
<b>Yes</b>	37	27
<b>No</b>	50	53
<b>Not Sure</b>	12	14
<b>Don't Watch TV</b>	1	6

## Appendix K: Cross Tabulations between Biggest Source of Water Pollution and Participant Knowledge & Behavior

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

**K1. Biggest Source of Water Pollution by Grass Clipping Disposal**

	Put in garbage	Leave them in the yard	Dump them into a gutter or ditch	Mulch or compost them	Other	I don't mow the lawn
Litter (i.e., Trash dumped into rivers and lakes)	10	12	---	14	16	6
Wastewater from industrial plants	17	14	---	24	16	11
Wastewater from sewage treatment plants	6	11	---	13	16	11
Runoff from yards, parking lots, and streets	14	26	---	24	36	39
Runoff from farms and agricultural operations	41	33	---	22	16	28
Don't know/Refuse to answer	12	4	100	3	---	5

**K2. Biggest Source of Water Pollution by Frequency of Fertilizing**

	Monthly or every other month	Two or three times per year	Once a year or less
Litter (i.e., Trash dumped into rivers and lakes)	9	12	8
Wastewater from industrial plants	29	14	12
Wastewater from sewage treatment plants	4	10	15
Runoff from yards, parking lots, and streets	29	29	29
Runoff from farms and agricultural operations	29	32	33
Don't know/Refuse to answer	---	3	3

**K3. Biggest Source of Water Pollution by Soil Testing**

	Yes	No
Litter (i.e., Trash dumped into rivers and lakes)	8	12
Wastewater from industrial plants	15	13
Wastewater from sewage treatment plants	13	11
Runoff from yards, parking lots, and streets	28	29
Runoff from farms and agricultural operations	34	31
Don't know/Refuse to answer	2	4

**K4. Biggest Source of Water Pollution by How do you get your vehicle washed**

	At home	Commercial Car Wash	Volunteer Car Wash	Other	I don't wash my vehicle
Litter (i.e., Trash dumped into rivers and lakes)	16	11	22	3	6
Wastewater from industrial plants	17	17	21	9	13
Wastewater from sewage treatment plants	13	11	---	9	21
Runoff from yards, parking lots, and streets	23	23	29	43	17
Runoff from farms and agricultural operations	28	30	14	33	35
Don't know/Refuse to answer	3	8	14	3	8

**K5. Biggest Source of Water Pollution by Soapy Wash Water Flow**

	Into the grass, dirt, or gravel	Into the street or driveway	It varies
Litter (i.e., Trash dumped into rivers and lakes)	16	10	18
Wastewater from industrial plants	13	19	13
Wastewater from sewage treatment plants	14	7	13
Runoff from yards, parking lots, and streets	31	19	39
Runoff from farms and agricultural operations	24	43	17
Don't know/Refuse to answer	2	2	---

**K6. Biggest Source of Water Pollution by Disposal of Used Oil**

	Put with garbage	Pour down drain, into yard, or ditch	Take it to be recycled	Other
Litter (i.e., Trash dumped into rivers and lakes)	16	50	11	14
Wastewater from industrial plants	33	---	11	43
Wastewater from sewage treatment plants	17	25	16	29
Runoff from yards, parking lots, and streets	17	25	28	14
Runoff from farms and agricultural operations	17	---	29	---
Don't know/Refuse to answer	---	---	5	---

**K7. Biggest Source of Water Pollution by Pet Waste Pickup**

	Always	Sometimes	Rarely	Never
Litter (i.e., Trash dumped into rivers and lakes)	9	12	18	13
Wastewater from industrial plants	16	20	9	15
Wastewater from sewage treatment plants	11	10	9	14
Runoff from yards, parking lots, and streets	27	31	24	26
Runoff from farms and agricultural operations	29	27	40	29
Don't know/Refuse to answer	8	---	---	3

## Appendix L: Cross Tabulations between Where Storm Water Goes and Participant Knowledge & Behavior

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### L1. Where Stormwater Goes by Grass Clipping Disposal

	Put in garbage	Leave them in the yard	Dump them into a gutter or ditch	Mulch or compost them	Other	I don't mow the yard
Sewage/wastewater treatment plant	12	19	---	19	25	18
A separate special treatment plant	13	8	---	7	10	23
Nearby fields and yards	14	6	---	7	5	6
Into the nearest stream	57	59	100	62	60	41
Don't know/Refuse to answer	4	8	---	5	---	12

### L2. Where Stormwater Goes by Frequency of Fertilizing

	Monthly or every other month	Two or three times per year	Once a year or less
Sewage/wastewater treatment plant	5	21	20
A separate special treatment plant	9	10	4
Nearby fields and yards	5	7	10
Into the nearest stream	76	59	60
Don't know/Refuse to answer	5	3	6

### L3. Where Stormwater Goes by Soil Testing

	Yes	No
Sewage/wastewater treatment plant	16	21
A separate special treatment plant	8	6
Nearby fields and yards	5	9
Into the nearest stream	63	62
Don't know/Refuse to answer	8	2

### L4. Where Stormwater Goes by Vehicle Washing

	At home	Commercial Car Wash	Volunteer Car Wash	Other	I don't wash my vehicle
Sewage/wastewater treatment plant	16	20	29	12	23
A separate special treatment plant	9	10	7	9	8
Nearby fields and yards	7	7	---	12	6
Into the nearest stream	59	57	57	61	52
Don't know/Refuse to answer	9	6	7	6	11

**L5. Where Stormwater Goes by Soapy Wash Water Flow**

	<b>Into the grass, dirt, or gravel</b>	<b>Into the street or driveway</b>	<b>It varies</b>
<b>Sewage/wastewater treatment plant</b>	15	22	29
<b>A separate special treatment plant</b>	8	6	9
<b>Nearby fields and yards</b>	7	8	8
<b>Into the nearest stream</b>	63	57	54
<b>Don't know/Refuse to answer</b>	7	7	---

**L6. Where Stormwater Goes by Disposal of Used Oil**

	<b>Put with garbage</b>	<b>Pour down drain, into yard, or ditch</b>	<b>Take it to be recycled</b>	<b>Other</b>
<b>Sewage/wastewater treatment plant</b>	33	100	11	25
<b>A separate special treatment plant</b>	---	---	7	12
<b>Nearby fields and yards</b>	---	---	8	13
<b>Into the nearest stream</b>	67	---	69	50
<b>Don't know/Refuse to answer</b>	---	---	5	---

**L7. Where Stormwater Goes by Pet Waste Pickup**

	<b>Always</b>	<b>Sometimes</b>	<b>Rarely</b>	<b>Never</b>
<b>Sewage/wastewater treatment plant</b>	20	10	12	16
<b>A separate special treatment plant</b>	7	10	13	12
<b>Nearby fields and yards</b>	5	7	6	12
<b>Into the nearest stream</b>	61	65	66	56
<b>Don't know/Refuse to answer</b>	7	8	3	4