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**POTOMAC CONSERVANCY  
WASHINGTON, DC AREA WATER QUALITY SURVEY**

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# Introduction

## **Background**

The Potomac Conservancy (PC) retained the services of Corporate Development Associates (CDA) to survey and document perceptions of water quality issues in the DC metro area. The results of this research are intended to be incorporated into communications the organization will release publicly.

## **Methodology**

CDA conducted unsolicited telephone (176) and in-person (24) interviews with DC area residents. The Potomac Conservancy was not identified as the research sponsor, as the interviewer presented the call as deriving from a local non-profit group. If pressed by the respondent, the interviewer specified that they were calling from Corporate Development Associates.

The questionnaire was designed by CDA in response to specific directives provided by the PC. This research instrument focused primarily on assessing public awareness and understanding of pollution sources impacting DC area streams and rivers. Relevant demographic data was also recorded.

## **Sampling Procedure**

A total of 200 random interviews comprise the data base for this project. While this sample is not statistically significant on both total sample and subgroup measures, it does provide directional insight into the issues investigated.

## **Field Dates**

Interviewing for this project was initiated on October 1, 2008 and was concluded on October 15, 2008.

## Key Findings

- As an overall observation, it appears that residents of the Washington, DC metro area are relatively uncertain about the causes of water pollution in local streams and rivers. All of the measured attributes were considered to be pollution sources, with industrial waste and sewage overflows identified as the most detrimental.
- While the majority of the respondents felt that untreated sewage was sent directly into rivers and streams during heavy rains, most people felt the situation was objectionable, but were unable to offer constructive solutions.
- While most DC area residents felt that drinking water was derived from local rivers and, to a lesser extent reservoirs, the water quality was clearly considered suspect, with 90% of the sample regarding it as polluted. Furthermore, ninety-eight percent felt that DC area waters were not potable.
- While most of the respondents felt that the water quality situation was serious, there was high awareness of the problem but little familiarity with potential solutions.
- It should be noted that while respondents completed the survey, questions were answered very tentatively indicating a low comfort level with the subject matter. However, respondents were better informed than they thought they were. Over 50% correctly identified the rivers as the primary source of the Washington areas drinking water and over 90% correctly perceived that Washington's streams and rivers were polluted.

## Key Findings

- Respondents correctly assumed that rainwater runoff went directly into streams and rivers untreated. While long term residents were most aware of this condition, awareness was evident across all demographic segments.
- Female and the youngest age group felt that Washington area streams and rivers were ‘very polluted’ at a higher rate than the total sample.
- Respondents were least informed about sources of pollution. Sixty percent (60%) of the sample incorrectly identified ‘industrial waste’ as the primary source of water pollution. Respondents who lived in the area for longer than 10 years and were in the 40 to 59 age cohort were most likely to correctly identify non-point sources as primary causes of water pollution.
- Clearly respondents were concerned about water quality issues but did not feel well informed. Many wanted to know both the correct answers to the questionnaire and remedial measures to the problems. This void in the public’s education concerning water quality solutions can be addressed by The Potomac Conservancy.

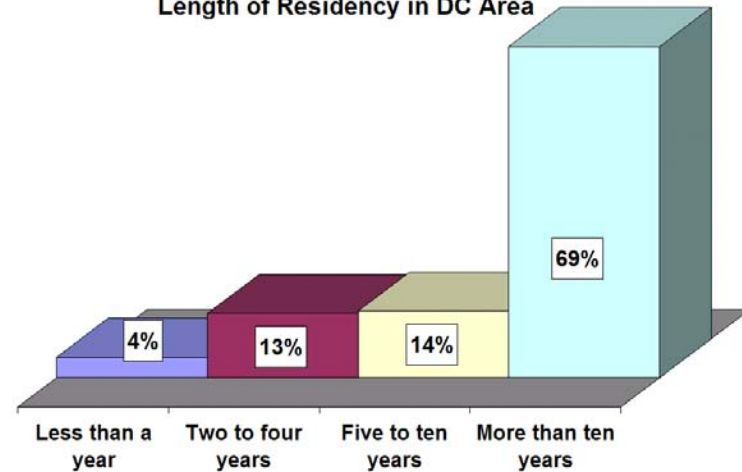
# DEMOGRAPHIC PROFILE

The vast majority of respondents resided in the DC area in excess of ten years, with about half of the total sample falling between the ages of 40 and 59.

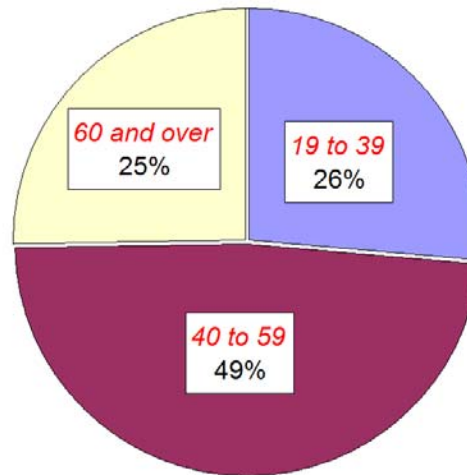
As such, the data heavily reflects a perspective that is both familiar with the DC environs and mature in outlook.

The sample was slightly skewed towards females, with females representing 116 interviews and males representing 84.

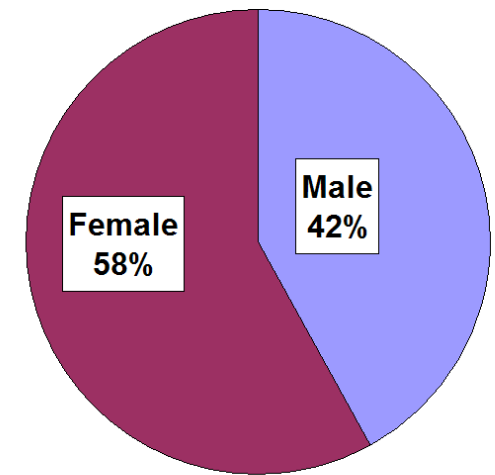
Length of Residency in DC Area



Age Profile



Gender Profile



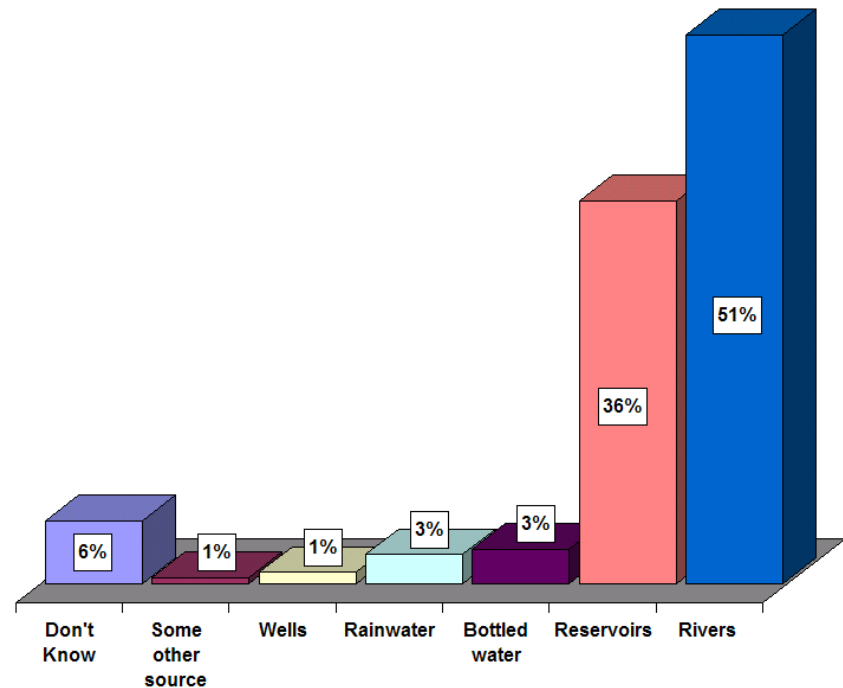
## Question 1. – Where do you think the Washington area gets most of its drinking water from?

**About half of the sample correctly identified rivers like the Potomac and the Anacostia as the source from where the DC area obtains most of its drinking water.**

**Among those inaccurately identifying drinking water sources, about 1/3 cited reservoirs.**

**Fully 94% of the sample identified some source from where they believed their drinking water was derived.**

Q. 1 - Source of Washington Area Drinking Water



## Segment Analysis

### Question 1. – Where do you think the Washington area gets most of its drinking water from?

By Length of Residency		
	< 10 years	>10 Years
Wells	3%	0%
Rainwater	3%	2%
Rivers	53%	50%
Bottled water	7%	2%
Reservoirs	32%	37%
Other source	0%	1%
Don't Know	2%	8%

By Gender		
	Female	Male
Wells	2%	0%
Rainwater	3%	4%
Rivers	47%	56%
Bottled water	6%	3%
Reservoirs	37%	30%
Other source	1%	0%
Don't Know	5%	8%

By Age Group			
	20 - 39	40 - 59	Over 60
Wells	5%	0%	0%
Rainwater	5%	3%	2%
Rivers	45%	60%	49%
Bottled water	7%	6%	0%
Reservoirs	29%	26%	40%
Other source	0%	1%	0%
Don't Know	10%	4%	9%

#### Length of Residency

Residents who had lived in the DC area 10 or less years identified drinking water sources at the same levels as those who had resided in the area for more than 10 years. About half of each group most often identified rivers as the primary drinking water source and roughly one-third of each group identified reservoirs as the source.

#### Gender

Males somewhat more frequently felt drinking water was drawn from rivers, while females somewhat more often believed it came from reservoirs.

#### Age Group

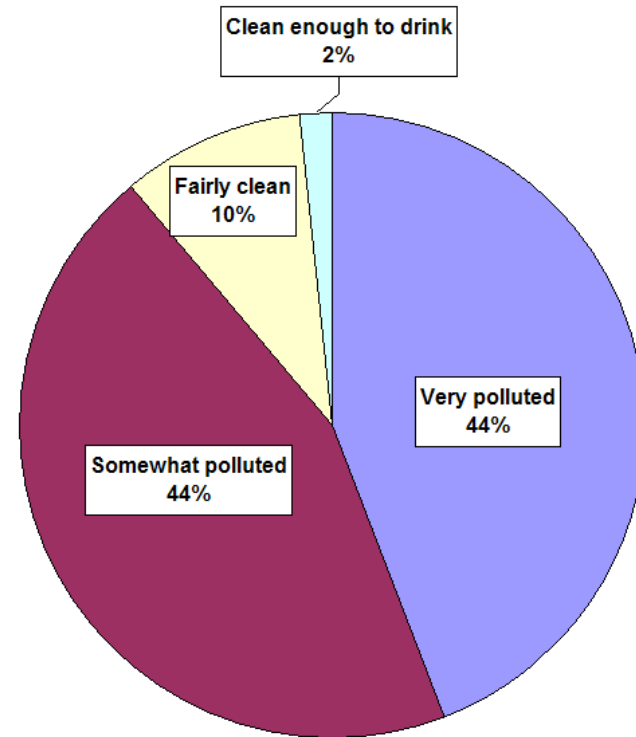
Respondents 40-59 well exceeded the other age groups, as the majority in that segment correctly identified rivers as the primary source for drinking water. A somewhat higher percentage of those in the over 60 group felt drinking water originated in reservoirs.

## Question 2. – How would you rate the water quality of local streams and rivers?

With 88% of those interviewed regarding local streams and rivers as polluted, fully half of those correctly characterized the water as 'very polluted'.

Of the remaining sample, 10% considered the water clean enough to swim in, while only 2% considered it clean enough to drink.

Q.2 - Water Quality of Local Streams & Rivers



## Segment Analysis

### Question 2. – How would you rate the water quality of local streams and rivers?

By Length of Residency		
	< 10 years	>10 Years
Very polluted	42%	46%
Somewhat polluted	43%	42%
Fairly clean	12%	10%
Clean enough/drink	3%	2%

By Gender		
	Female	Male
Very polluted	46%	38%
Somewhat polluted	45%	45%
Fairly clean	8%	14%
Clean enough/drink	1%	3%

By Age Group			
	20 - 39	40 - 59	Over 60
Very polluted	62%	38%	41%
Somewhat polluted	33%	52%	39%
Fairly clean	2%	8%	17%
Clean enough/drink	2%	1%	2%

#### Length of Residency

Respondents who lived in the DC area 10 or less years were quite comparable to those living in the area for more than 10 years on rating local water quality, with slightly more than 40% of each group rating the water ‘very polluted’ and rating the water ‘somewhat polluted’. Positive perceptions of the water quality, while low, were also quite comparable.

#### Gender

While ‘somewhat polluted’ ratings were identical for males and females, slightly more females rated the water ‘very polluted’ while slightly more males rated it ‘fairly clean’.

#### Age Group

Marked differences were evidenced by age group. Respondents 39 and younger rated the water quality ‘very polluted’ significantly more often than did the older age groups. Those 40-59 distinguished themselves in rating the water quality ‘somewhat polluted’ significantly more often than the other age groups. The over 60 group somewhat exceeded the other age groups in the percentage of those rating the water ‘fairly clean’.

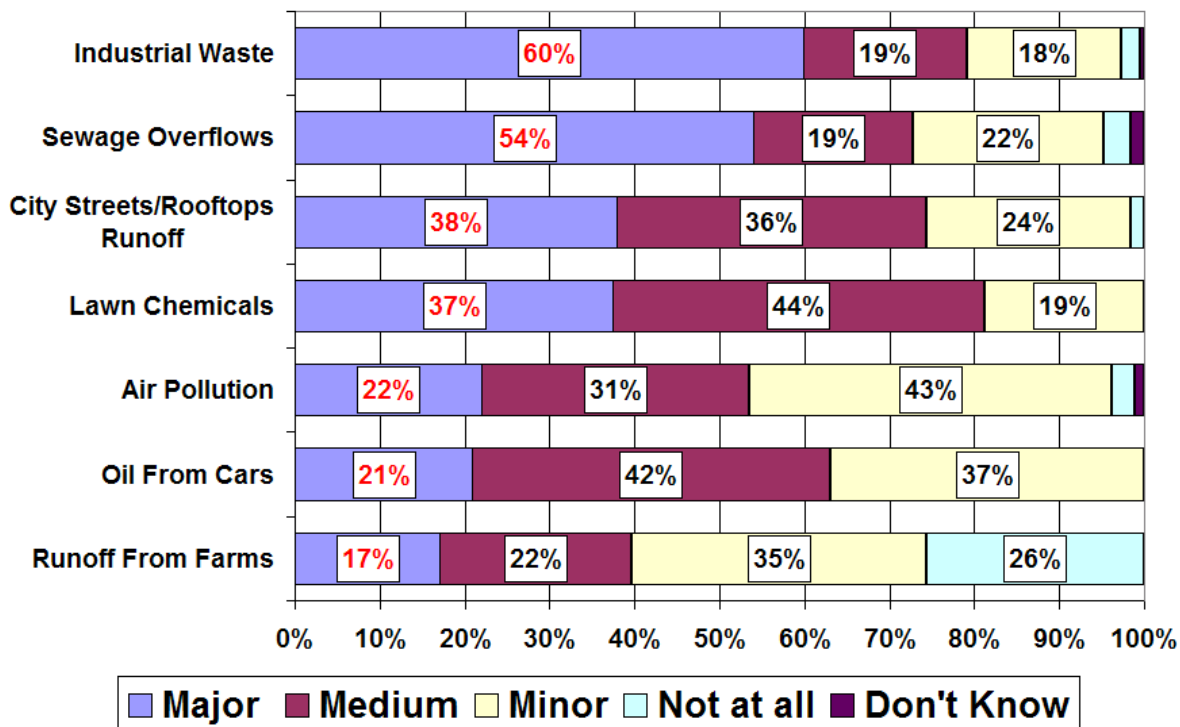
**Question 3. - Now I am going to read you a list of possible causes of water pollution in local streams and rivers. I'd like to know if you feel each is a Major Contributor, a Medium Contributor, a Minor Contributor or Does Not Contribute At All to water pollution in this area?**

**Respondents erroneously regarded industrial waste and sewage overflows as the most consequential causes of water pollution in local streams and rivers.**

**Examining the actual causes most responsible for this pollution, the non-point 'runoff from city streets and rooftops' was the third most frequently identified source, while 'runoff from farms' was the least cited cause.**

**In answering this question, respondents often pondered the number of farms in this area and generally concluded that most of the farms were not extant.**

**Q.3 - Sources of Pollution**



## Segment Analysis

**Question 3. - Now I am going to read you a list of possible causes of water pollution in local streams and rivers. I'd like to know if you feel each is a Major Contributor, a Medium Contributor, a Minor Contributor or Does Not Contribute At All to water pollution in this area?**

Major Cause By Length of Residency			Major Cause By Gender			Major Cause By Age Group			
	< 10 years	>10 Years		Female	Male		20 - 39	40 - 59	Over 60
Runoff from farms	15%	19%	Runoff from farms	13%	23%	Runoff from farms	12%	21%	17%
City streets/ rooftops runoff	37%	42%	City streets/ rooftops runoff	36%	38%	City streets/ rooftops runoff	36%	40%	35%
Sewage overflows	70%	47%	Sewage overflows	57%	48%	Sewage overflows	69%	49%	52%
Lawn chemicals	42%	48%	Lawn chemicals	42%	26%	Lawn chemicals	38%	35%	39%
Oil from cars	28%	17%	Oil from cars	24%	17%	Oil from cars	26%	17%	17%
Air pollution	25%	53%	Air pollution	23%	11%	Air pollution	24%	21%	11%
Industrial Waste	62%	52%	Industrial Waste	58%	53%	Industrial Waste	74%	57%	52%
Other	0%	0%	Other	0%	0%	Other	0%	0%	0%

### Length of Residency

Only about 40% of the members of either residency segment correctly identified city streets/rooftop runoff as major causes of water pollution in the DC area. Far less, however, correctly identified runoff from farms, with both segments remaining under 20%. Those in the '10 or less years' segment heavily selected sewage overflows and industrial waste as major contributors to water pollution, while those in the 'more than 10 years' residency segment most often identified industrial waste and air pollution.

### Gender

Females generally identified major pollution causes at heavier levels than did males, with levels exceeding males in five of seven categories. Females and males most often identified sewage overflows and industrial waste as major pollution causes.

### Age Group

Those in the 30 and under group more heavily attributed major pollution to industrial waste and sewage overflows than did those in the other age segments. Ratings on the actual major water pollution causes were relatively comparable across segments, with those 40-59 slightly exceeding the other groups on both measures.

**Question 4. - After a rain, where do you think water that goes down the storm sewers you see along the streets goes to?**

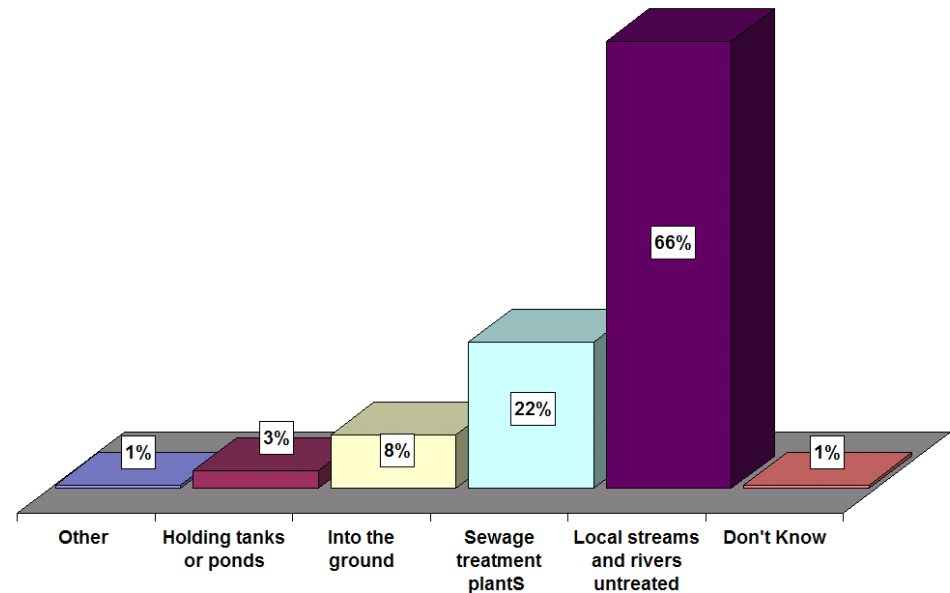
**About 2/3 of the respondents were correct in concluding that the water that went into the storm sewers after a rain was released untreated into local streams and rivers.**

**An additional 1/5 of the sample felt storm sewer water was directed to sewage treatment plants.**

**Accurately or not, fully 99% of the sample identified a location to where they felt the storm water was directed.**

**‘Into the ground’, the third most frequently identified solution, garnered less than 10% of the mentions.**

**Q.4 - Storm Sewer Flow**



## Segment Analysis

**Question 4. - After a rain, where do you think water that goes down the storm sewers you see along the streets goes to?**

**By length of residency, gender and age group, the largest percentage, by far, in all demographic segments identified untreated rainwater delivered into local streams and rivers as the destination of storm sewer discharge.**

**Sewage treatment plants were the next most frequently identified destination for storm sewer discharge again by both pairs within the residency and gender demographics and by all three segments of the age group.**

**Interestingly, those residing in DC over ten years, males and those over 60 well exceeded their complimentary sub-groups in the percentage that identified local streams as the storm sewer recipient.**

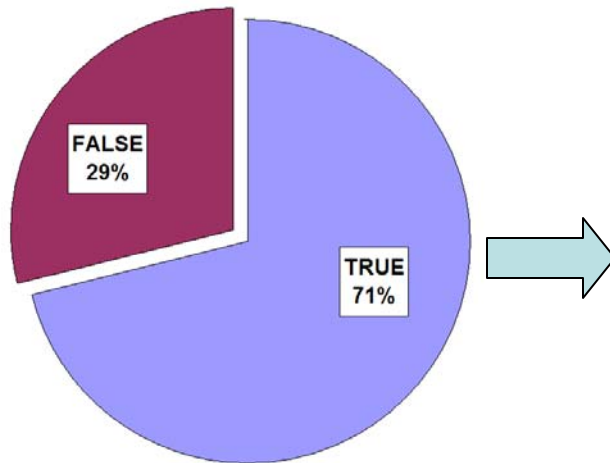
Q.4 By Length of Residency		
	< 10 years	>10 Years
The sewage treatment plant	32%	17%
Into local streams/rivers untreated	53%	74%
To holding tanks or ponds	5%	2%
Into the ground	11%	7%

Q.4 By Gender		
	Female	Male
The sewage treatment plant	20%	23%
Into local streams/rivers untreated	67%	72%
To holding tanks or ponds	2%	3%
Into the ground	11%	3%

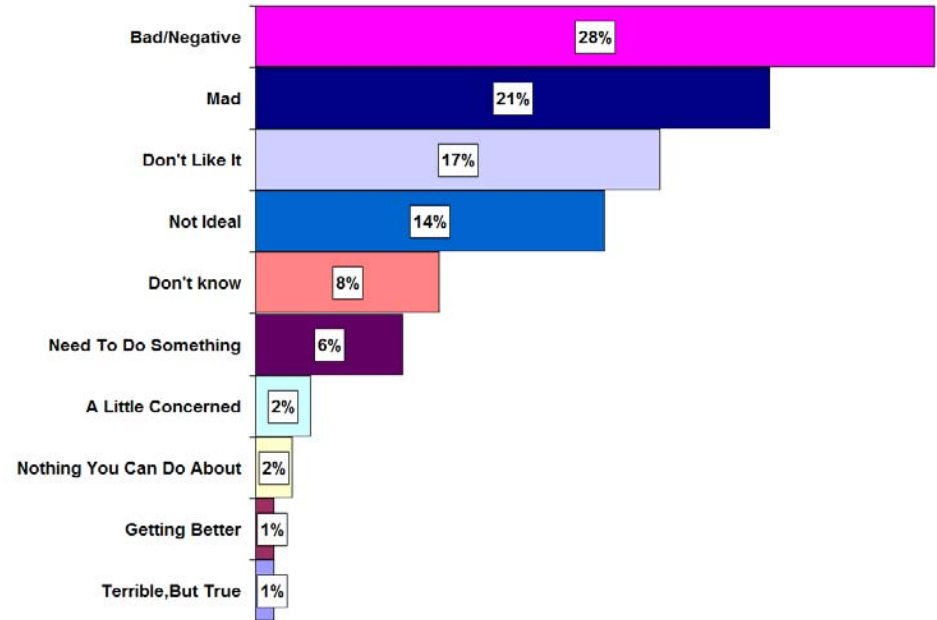
Q.4 By Age Group			
	20 - 39	40 - 59	Over 60
The sewage treatment plant	32%	27%	6%
Into local streams/rivers untreated	60%	66%	80%
To holding tanks or ponds	4%	2%	7%
Into the ground	4%	5%	7%

**Question 5. True or False - During heavy rains, untreated sewage is sent directly into the rivers around Washington, D.C.? Question 5a. – How do you feel about that?**

**Q.5 - Untreated Sewage Flow**



**Q. 5a - Reactions**



**A more pointed question revealed almost  $\frac{3}{4}$  of the sample recognizing, often reluctantly, that untreated sewage was sent directly into Washington area rivers during heavy rains. Several of those, in fact, who maintained the statement was false qualified their response as hopeful.**

**The idea of releasing untreated sewage into rivers in response to heavy rains was roundly condemned, as virtually all respondents reacted negatively to this premise. Whether ‘bad’, ‘mad’, ‘don’t like it’ or an alternative expression, the overwhelming consensus was that releasing untreated sewage into Washington’s rivers was unacceptable.**

## Segment Analysis

### 5. True or False - During heavy rains, untreated sewage is sent directly into the rivers around Washington, D.C.?

Q.5 By Length of Residency		
	< 10 years	>10 Years
TRUE	67%	85%
FALSE	33%	15%

Q.5 By Gender		
	Female	Male
TRUE	71%	72%
FALSE	29%	28%

Q.5 By Age Group			
	20 - 39	40 - 59	Over 60
TRUE	72%	69%	76%
FALSE	28%	31%	24%

Clearly the majority of respondents in each complimentary sub-group within each demographic measure believed that untreated sewage was sent directly into the rivers around Washington. The vast majority of males and females, those in all three age groups and both residency groups maintained the assertion was true.

Within the gender and age group demographics, the proportions across sub-groups were relatively comparable, but within the residency demo, those with more than ten years experience well exceeded the ten or less group in supporting the veracity of this true/false statement.

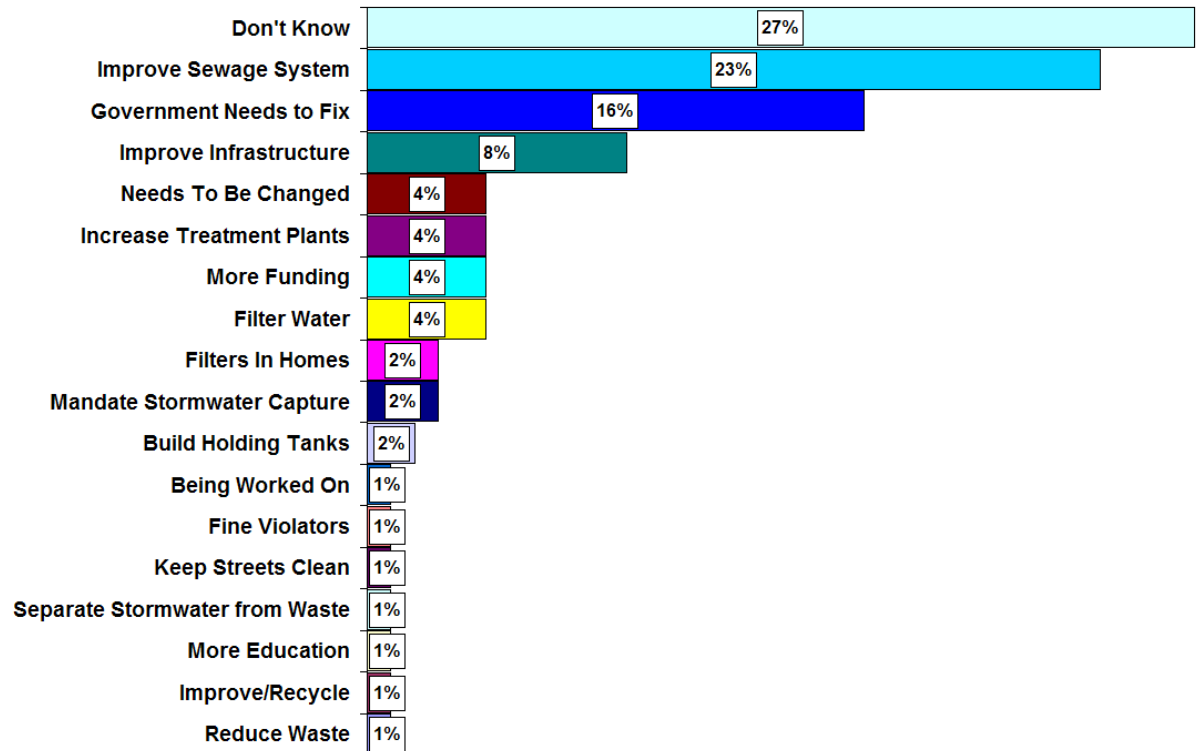
**Question 5. True or False - During heavy rains, untreated sewage is sent directly into the rivers around Washington, D.C.? Question 5b. – What do you think about that?**

**While regarding the release of untreated sewage into rivers as highly objectionable, respondents did not demonstrate a defined understanding of the recourse available to rectify this problem.**

**With the largest proportion of the sample (27%) unable to recommend a solution, most of the remaining suggestions were generic (improve sewage system) or non-specific (government needs to fix).**

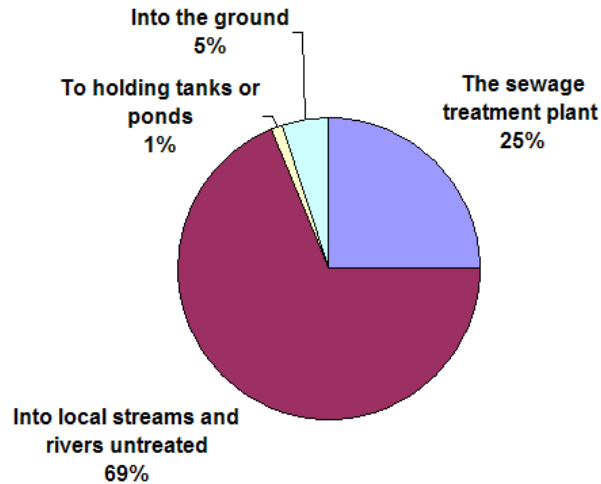
**Identification of solutions that were viable (improve infrastructure, mandate stormwater capture, separate stormwater from waste) represented only 11% of the total suggested.**

**Q. 5b - Possible Solutions**

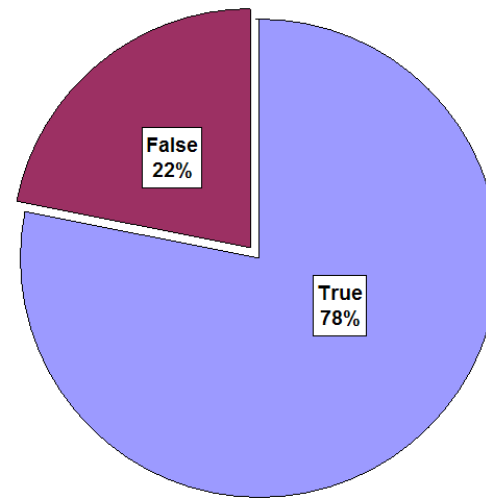


## Storm Sewer Flow and Untreated Sewage Flow Responses By 'Very Polluted Raters' (Q.4 & Q.5)

Very Polluted Raters Response to Q. 4



Very Polluted Raters Response to Q.5



**Not surprisingly, respondents who rated the water quality of local streams and rivers as 'very polluted' (Q.2) strongly believed (69%) that water entering storm sewers was sent into local streams and rivers untreated and strongly supported the contention (78%) that untreated sewage was sent directly into DC rivers during heavy rains.**

**These individuals, representing almost half of the sample (44%), suggest a fairly broad awareness of the causal relationship underlying pollution.**