LOTT Clean Water Alliance

# Groundwater Recharge Scientific Study

## Telephone Survey of Residents
## Report on Findings

May 2013

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# Contents

# 1 Key Findings

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|---|---|
| ***Importance of Water Quality*** | Water quality is clearly the top environmental issue in the area. An open end question with 10% is typically considered significant; this is three times that (30%). |
| ***LOTT Familarity*** | LOTT isn't well known but it is well liked among those that know it. |
| ***Opinion on Reclaimed Water Use*** | While there are some initial concerns about using reclaimed water for groundwater recharge, people are more concerned with putting reclaimed water into streams to improve streamflows than they are about using it for groundwater recharge. Conserving future water supplies is perceived as the main driver of support for groundwater recharge with reclaimed water. |
| ***Concern Increases as Awareness Increases*** | As more information is introduced about what reclaimed water is, and what may be in it, concern grows. In an early question, 6% strongly oppose using reclaimed water to recharge groundwater. Later on in the survey after being given additional information about reclaimed water, 28% indicate they are very concerned about contaminants. This suggests that as people's awareness of contaminants grows, so will their level of concern. |
| ***Concern is Higher Among Certain Sub-Groups*** | Residents over 55, women, and those interested in the news register the highest level of concern; at least a quarter of every subgroup is concerned about compounds in water, wastewater, and reclaimed water. |

# 2 Survey Purpose

**To provide the LOTT Clean Water Alliance, their Community Advisory Group and their Board of Directors with clear, accurate, and unbiased data about north Thurston County residents' general awareness of and attitudes towards water, wastewater, and reclaimed water within their communities, as well as awareness and attitudes towards the LOTT Clean Water Alliance.**

# 3 Summary of Methodology

This survey was conducted via telephone among residents 18 years of age or older within the approximate LOTT service area.

We conducted 400 Interviews, which translates to a Margin of Error of ±4.9 points at the 95% confidence interval.

The data was checked against US Census information for the area. Minor weighting adjustments were made to ensure the results closely match Census figures for age, gender, and ethnicity.

The survey was conducted March 5th- 10th 2013. Prior data collection, an overview of the study's objective, a review of the sample, and question-by-question specifications were supplied to the interviewers and field supervisors. The questionnaire was reviewed in its entirety with the interviewers, with emphasis on instructions regarding call back procedures, respondent screening, termination points, skip patterns, and acceptable probes and clarifications for open-ended questions.

All interviewing was conducted by trained, professional interviewers. Interviewer calls were monitored periodically by the supervisor to ensure that all procedures were properly followed. Upon completion, each interview was edited twice. The initial editing was done by the interviewer. An experienced supervisor followed up with a second editing. Missing answers and failed instructions were noted. If necessary, respondents were called back to complete or clarify questions. In addition, answers to open-ended questions were checked for legibility, completeness, and clarity. Monitoring and editing ensured that:

- Questions were read exactly as written, in the correct order
- Responses were recorded verbatim
- Skip patterns were followed correctly
- Natural pace was maintained
- Non-directive feedback/reinforcement was used
- Questions were not over-probed or under-probed and non-leading probes were used

Response rates are critical to ensuring the projectability of the sample. The most important factor in achieving a high response rate is callback strategy. Callbacks were made to households where there was no answer, a busy signal, an answering machine or where a callback appointment was made on the first attempt. Additional callbacks were made until the household is either determined to be ineligible or four dialing attempts have been made.

To maximize the likelihood of contacting respondents, interviewing on week nights was only conducted between the hours of 5:00 p.m. and 9:30 p.m. On weekends, calling occurred between 10:00 a.m. and 9:30 p.m. Weekend calling (Friday night to Sunday afternoon) was limited to a maximum of 25 percent of the sample, since research has shown that an older sample generally results from concentrated weekend calling. Sunday evenings, however, were emphasized as the best and most representative calling time.

## 3.1 Understanding Margin of Error

The minimum Margin of Error (MoE) for the overall number of interviews (400) survey is ±4.9 percentage points at the 95% confidence interval. This means that 95 out of 100 times, the reported results will be within ±4.9 percentage points of the actual results if you were to survey the entire registered voter population in the area.

The Margin of Error for specific survey questions also depends on the number of respondents. There are several questions that were only asked of those who gave a specific response to the previous question. In those instances, the sample size for the question is lower than for the overall survey and the MoE is greater than ±4.9. When comparing results across subgroups (for example, gender, age, education, etc.), the MoE also increases, as the number of individuals in those subgroups is less than the 400 total. The MoE increases significantly as sample size decreases. Care should be taken when assessing results from questions with smaller sample sizes and differences between subgroups.

## 3.2 Random Digit Dial

Random Digit Dialing (RDD) was used to select participants for this survey. RDD selects households by randomly dialing numbers within a specified geographic area. In the case of this research, we selected zipcodes that approximated the LOTT service area from which to draw our sample. The strength of RDD is that allows numbers within that geographic frame to be generated at random, meaning listed and unlisted numbers are as equally likely to be dialed. RDD is an effective way of gaining a sample that is representative of the population as a whole.

To further assure we were reaching adults living within our geographic sample, rather than interviewing whoever answered the phone, we asked to speak to the youngest male over the age of 18. This helped assure that we spoke to both males and females of varying ages and generated a sample that accurately represented the entire population, rather than over-representing those who answer the phone (who disproportionately tend to be women and those older than the general population).

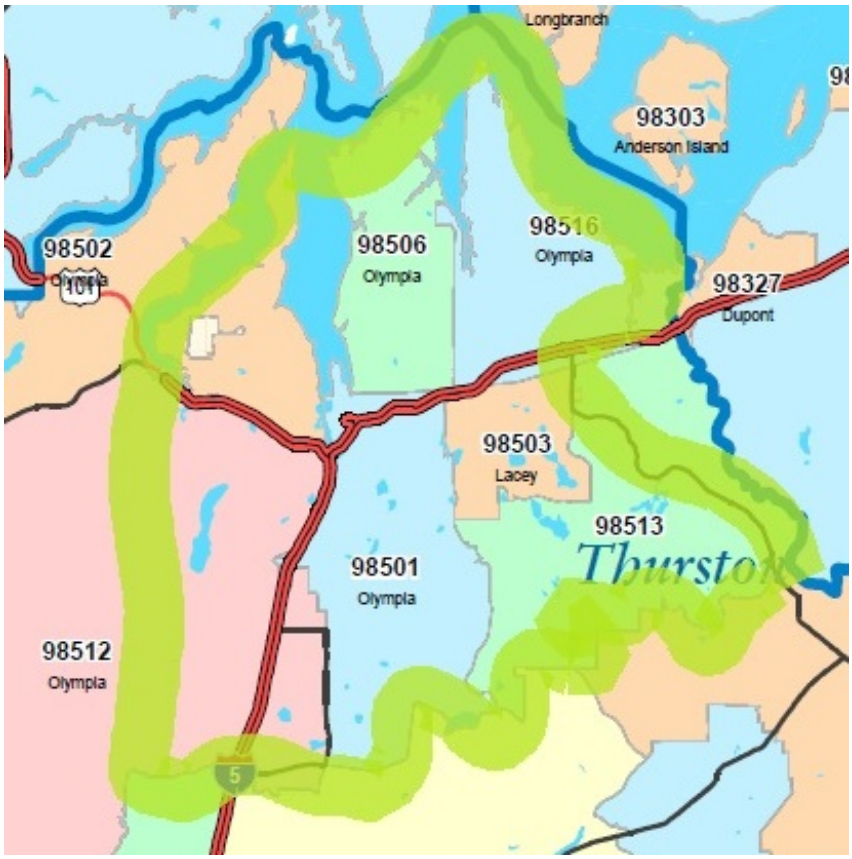
Because RDD selects numbers based on zip codes, and not cities, zip codes were chosen that approximate LOTT's service area. In all, these are fairly representative of LOTT's service area,

although there will be some blurring at the borders of the zip codes as to those who are or are not served by LOTT.

## 3.3 Sample Design

This is the approximate sampling area, including zips 98501, 98502, 98503, 98506, 98512, 98513, and 98516. Within zip codes 98502 and 98512 additional screens were utilized. Those living west of Delphi road, Mud Bay, and Eld Inlet were excluded from the survey.

**Figure 3-1 –Approximate Sample Area**




The broad green line in Figure 3.1 shows the boundaries of the sample area. The line is drawn broadly to signify potential blurring at the edges of the same area. Because phone numbers do not necessarily call back to a specific area, there is a chance that a few individuals outside the sample area were surveyed, and a few that should have been included in the sample were erroneously excluded. However, because of the concentration of population densities within the sample area and the relatively small sample size, the number of such individuals is likely to be quite small.

## 3.4 Questionnaire Design

The intention of this research was to determine the depth of area residents' current awareness, knowledge, and opinions about water, wastewater, reclaimed water, groundwater recharge, and related issues. The survey was designed to minimize bias and test how respondents attitudes changed as they were progressively provided with background information during the survey. It is important to note that respondents were not told the survey was being conducted for LOTT or that the subject matter of the survey related to water, reclaimed water, or environmental issues. In this way, respondents did not self-select to take the survey based on their interest in the subject matter and their answers were not biased by background information. As the survey progressed, additional information was given to respondents and their reactions captured.

The first series of questions asked respondents to recall knowledge without providing them any prompting or new information: they were asked whether or not they knew what LOTT was, if they had an opinion of LOTT, if they knew where their drinking water originated, and if they had ever heard of reclaimed water.

At this point in the survey, respondents were provided with a brief definition of reclaimed water. They were then asked their level of comfort with several different uses of reclaimed water, including groundwater recharge. They were also asked to explain why they would support or oppose its usage in recharging groundwater.

Finally, the presence of compounds like pharmaceuticals, soaps, and household and yard products in water, wastewater, and reclaimed water was mentioned. A series of several questions sought to understand respondents' awareness of these potential compounds, their level of concern at this information, and what specific concerns they may have.

# 4 Results

The initial series of questions sought to determine eligibility of respondents and establish a few general demographic characteristics such as age and gender. Because of the nature of these questions, they will not be covered in this written report. However, the results for these questions can be found in the topline appendix to this report.

## 4.1 Baseline Knowledge, Awareness, and Concerns

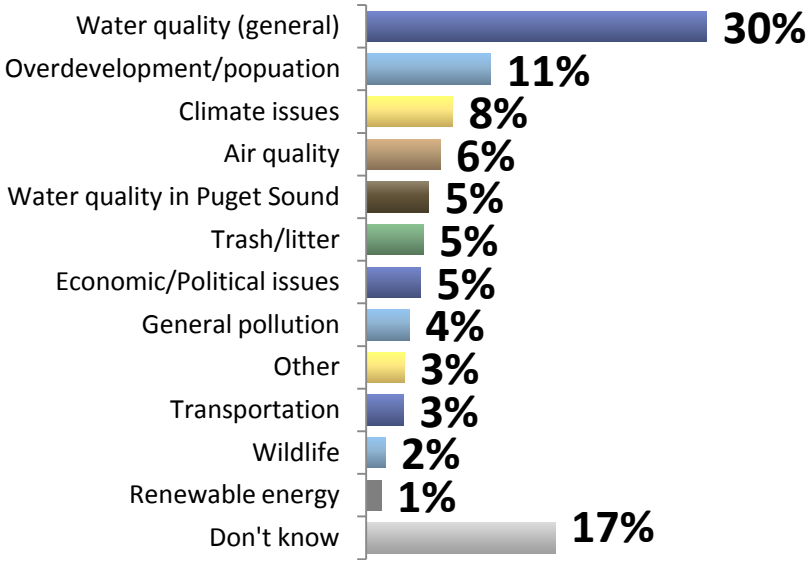
Respondents were asked to describe, in their own words, what they felt was the largest environmental issue facing the area. Their open-ended responses were then coded into one of 12 general categories.

**Question Analyzed**

*Q8. To begin, what do you think is the most important environmental issue facing the area?*

A large proportion of all respondents, 30%, indicated that water quality is the most important environmental problem in the area. For open-ended questions, a response of ten percent or more is considered statistically significant. The fact that three times this response was achieved for water quality indicates it is clearly a top environmental concern for area residents. This would indicate that even before discussing reclaimed water, the area's water quality is an important issue in residents' mind.

**Figure 4-1 –Environmental Issues of Concern**

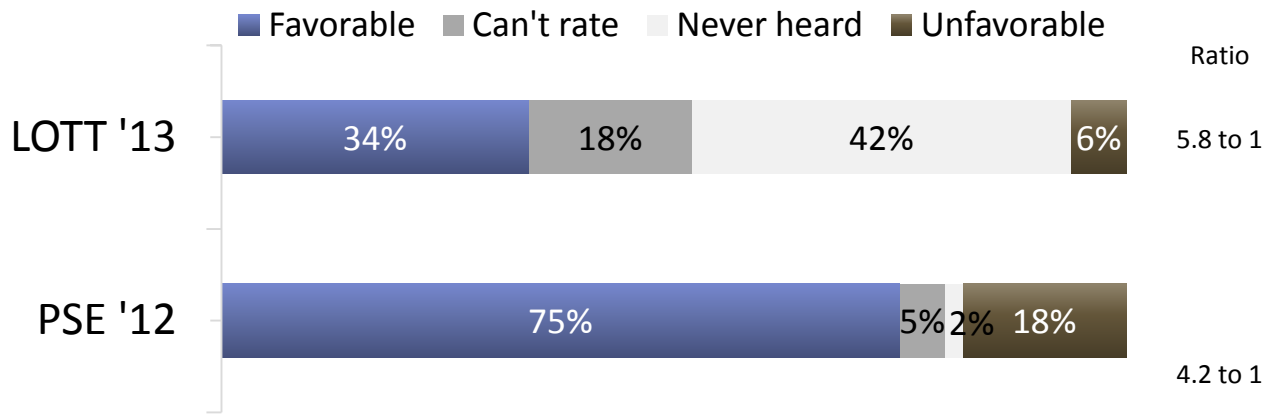


**Question Analyzed**

*Q9. Do you have a favorable or unfavorable opinion of the LOTT Clean Water Alliance, or have you never heard of LOTT?*

Respondents were asked if they had a favorable opinion of LOTT. For comparative purposes, the ratings for another well-known agency, Puget Sound Energy, were brought in from another research project conducted by EMC. The favorability ratio, that is the percentage who rated these agencies favorably divided by those who rated these agencies unfavorably, was also computed.

**Figure 4-2 –Favorability Ratings**



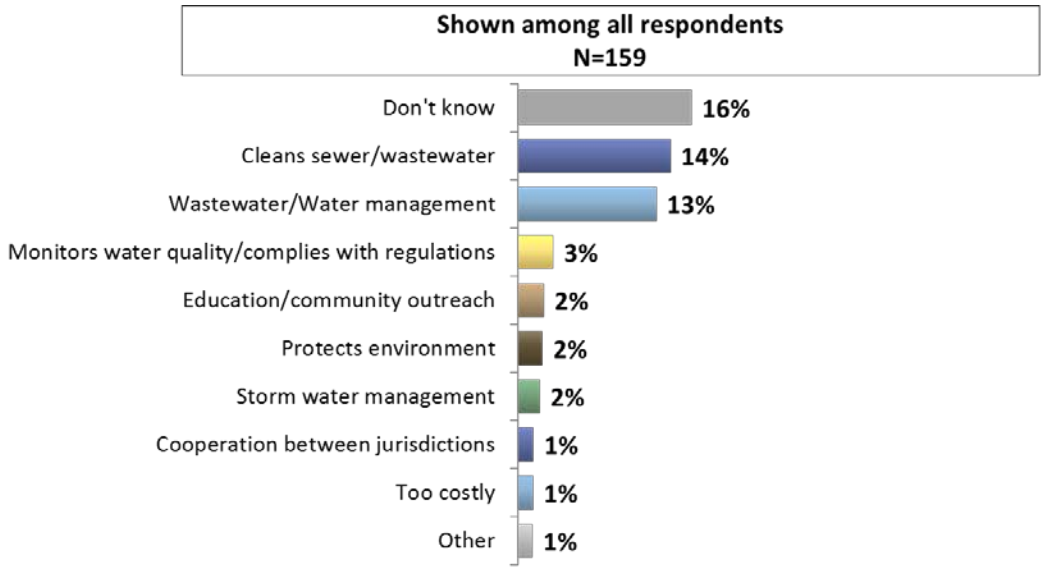

LOTT is not well known but is well liked among those who do know the agency. When asked their opinion, 34% of respondents had a favorable opinion of LOTT, 6% had an unfavorable opinion, 18% had heard of LOTT but did not know enough about the organization to rate it, and 42% percent had never heard of the LOTT Clean Water Alliance. While a large proportion of respondents had never heard of LOTT, of those who know and could rate the organization, the ratio of favorable to unfavorable opinions is quite high (5.8 to 1).

**Question Analyzed**

*Q10. How would you describe what the LOTT Clean Water Alliance does? (First-response)*

Respondents who knew and were able to rate their opinion of LOTT were then asked to describe what the LOTT Clean Water Alliance does. Their open-ended responses were then given a code and the frequency of each determined. In order to demonstrate the magnitude of people's awareness within the entire survey sample, Figure 4.3 shows each response as a percentage of 400, the total number of respondents in this survey. However, not everyone was asked this question. The "N" value of 159 reflects the number of individuals who were actually asked this question. The graphs for all other open-ended questions in which not every individual was asked to answer are also shown as a percentage of the entire survey population for the same reason. It is important to note that in these instances, the MoE is greater than the base MoE of ±4.9.

**Figure 4-3 –Knowledge of LOTT's Purpose**



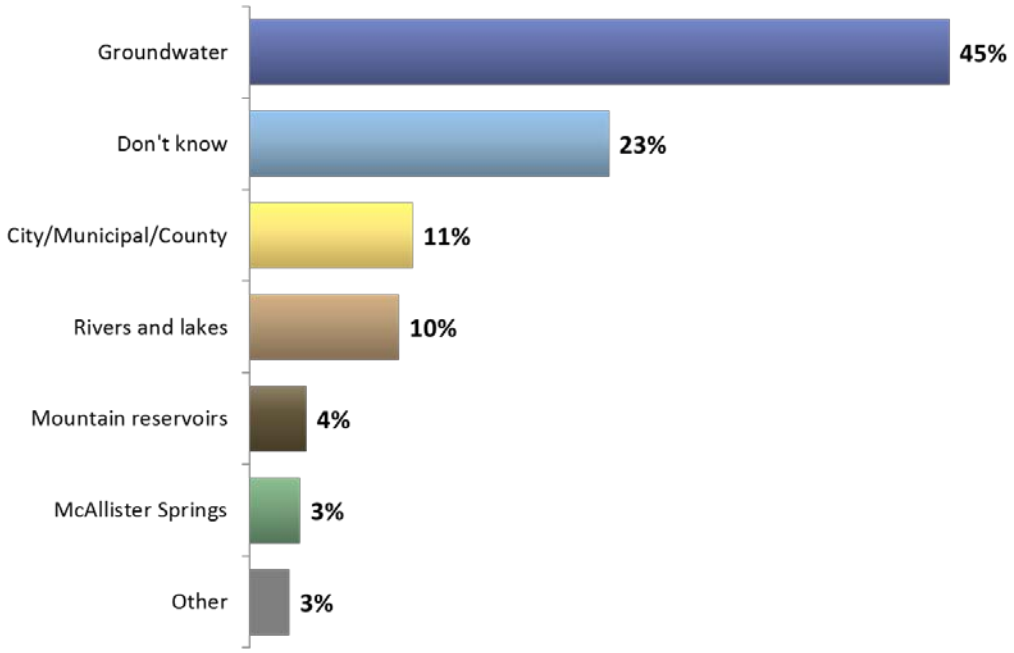

A relatively high percentage (27%) were able to give a detailed and accurate response about what LOTT does, with another 11% providing responses that reflect some aspect of LOTT's purpose and activities. However, 16% were not able to describe what they do. In general, those that have heard and can rate LOTT seem to have a good understanding of what the organization does.

**Question Analyzed**

*Q11. From what you know, what is the source of the drinking water in your tap at home (Single Response)*

The goal of this question was to understand if residents understood that their water comes from groundwater, or if they are unaware of this fact. As this was an open-ended question, respondents were able to answer in their own words, and their responses later coded into a more general category. Respondents have a high awareness that their drinking water originates as groundwater. Nearly half (45%) mentioned it.

**Figure 4.4 –Awareness of Water Sources**



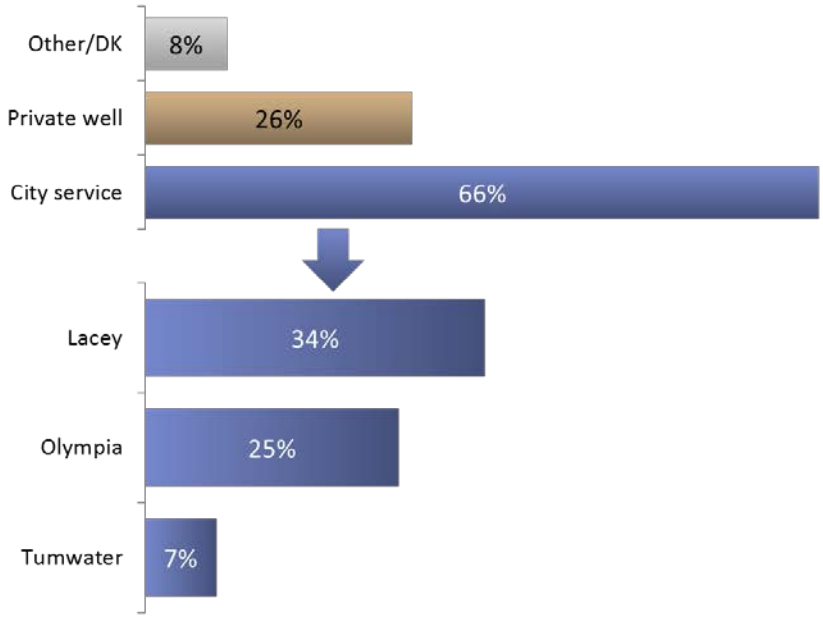

Additionally, 3 % said McAllister Springs, a specific source of groundwater in Thurston County. 23% of respondents did not know where their water comes from, 10% said Rivers and Lakes, 4% said Mountain Reservoirs, and 3% percent said Other. An additional 11% said their water came from a City, Municipal, or County agencies, indicating they misinterpreted the question.

**Question Analyzed.**

*Q12-13 And who or what provides your drinking water? If municipal, which city?*

Questions 12 and 13 further sought to understand if residents received water from a city service, or if they were on a private well. If they answered that they were provided with city service, they were then asked which city provided their drinking water. The proportion for each city is shown as a percentage of the total survey sample, but not everyone answered Q13.

**Figure 4-5 –Provider of Drinking Water**



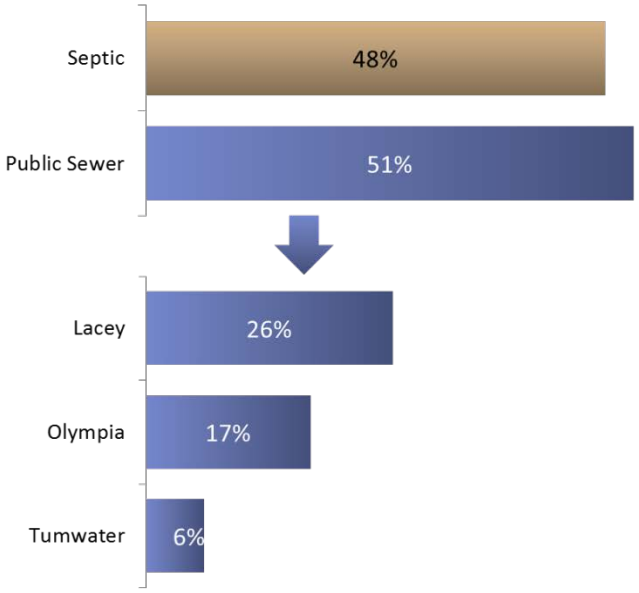

When asked to report who provides them with drinking water, 66% said that their water was provided by a city utility, 26% of respondents said they were on a private well, and 8% said something else or didn't know. Of all respondents, 34% said their water was provided by the City of Lacey, 25% said their water was provided by the City of Olympia and 7% said their water was provided by the City of Tumwater.

**Question Analyzed.**

*Q14-15. Does your home have a septic system or are you connected to a public sewer system for wastewater collection and treatment?*

Q14 and 15 asked respondents whether they were on a septic or public sewer system. As with Q12 and Q13, if they answered that they were on a public sewer system, they were then asked what city provided their service. Again, the proportion of each city was selected is shown as a percentage of the entire survey sample, although not everyone was asked this question.

**Figure 4.6 –Provider of Septic or Sewer Service**




Respondents indicated that 48% were on septic systems, while 51% were on a public sewer system. 26% said their service came from Lacey, 17% from Olympia, and 6% from Tumwater.

**Findings**

- ***Water quality is a an important issue that is on the top of residents' minds.***
- ***LOTT isn't as widely known as other utilities in the area, however, its favorability is high among those who can rate it. Those who know of LOTT generally have a good understanding of what they do.***
- ***Roughly half of respondents have a good understanding of where their drinking water originates.***

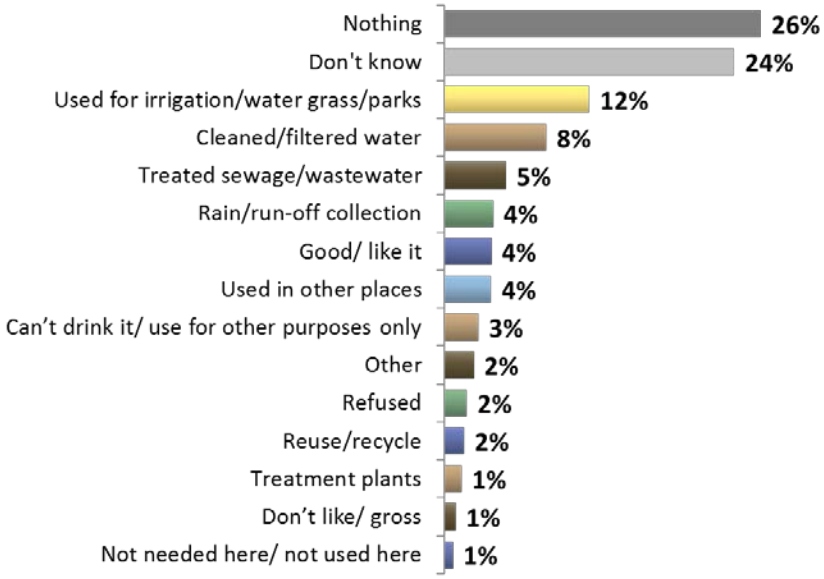
## 4.2 Base Awareness and Concern for Reclaimed Water

**Question Analyzed.**

*Q17. What, if anything, have you heard about reclaimed water? (First response)*

Q17 was the first attempt to gauge the depth of respondent's understanding of reclaimed water. The question asked each respondent to provide an answer in their own words to what they have heard about reclaimed water. These answers were later given a code and tallied. Respondents were able to give multiple answers about what they had heard about reclaimed water, but Figure 4.7 below provides only the first response.

**Figure 4.7 –Unprompted Awareness of Reclaimed Water**



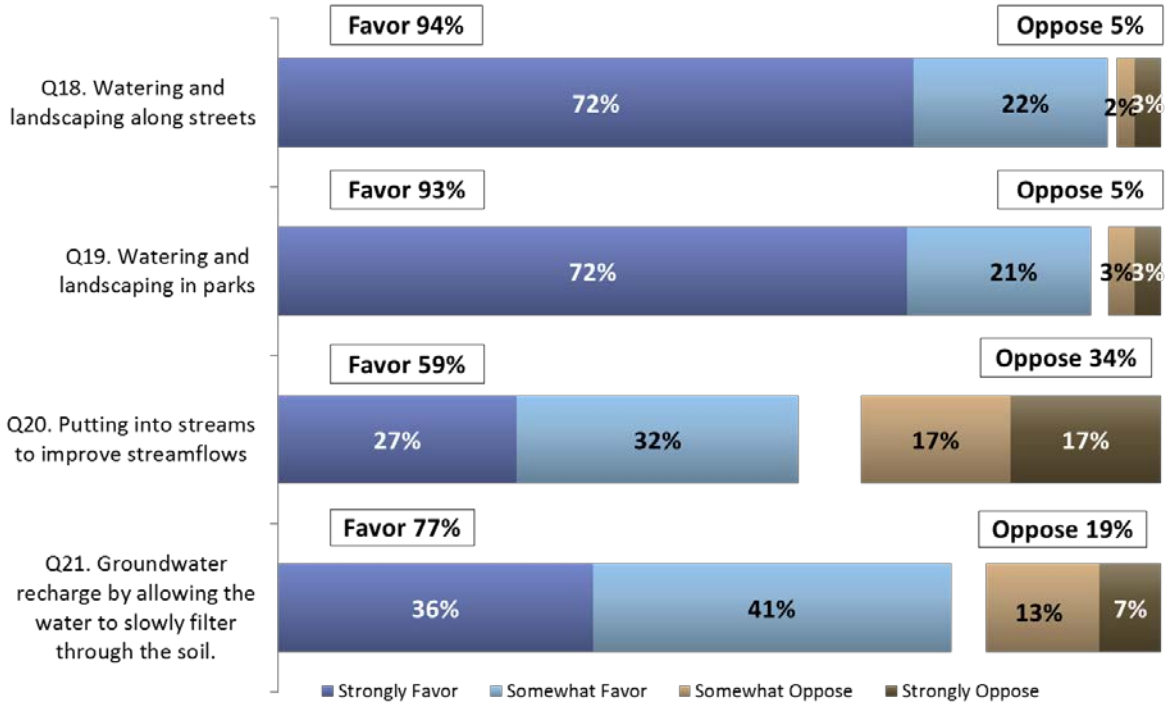

When combining people who answered Nothing (26%) or Don't Know (24%), half of the respondents don't know anything about reclaimed water. However, roughly half the respondents had heard something about reclaimed water, and they were able to answer with some specificity about what reclaimed water is.

Respondents were asked four questions to gauge their level of comfort with several different uses of reclaimed water in their community. Before being asked to rank these four uses, they were read the following statement:

> *I'm going to ask you about some potential uses for reclaimed water in your community. Reclaimed water is wastewater that is treated and cleaned so that it can be used again for almost any use except drinking. Please tell me if you strongly oppose, somewhat oppose, somewhat favor*

The intention here was to gauge any differences in comfort level with the idea of using reclaimed water for purposes that could be considered passive, or unlikely to come into direct contact with people (Q18 and Q19), a use that might have an impact on streams or wildlife (Q20), and a use in which reclaimed water could potentially interact with groundwater (Q21). Respondents were asked if they would oppose or favor each of these uses.

**Figure 4.7 –Favorability and Opposition to Different Uses**

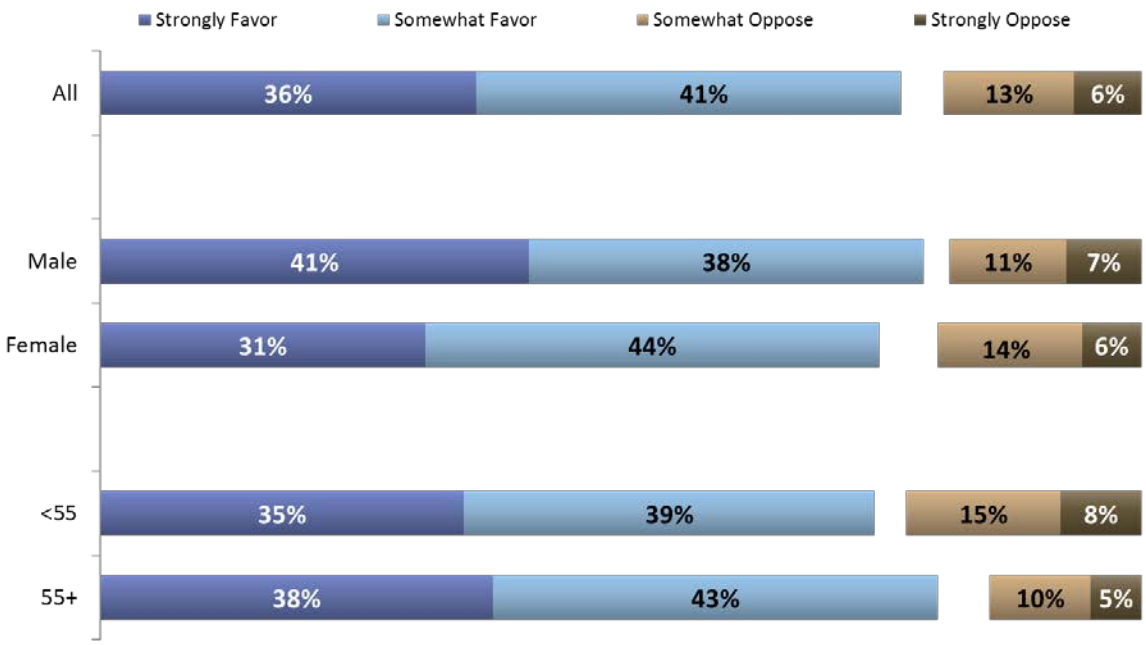



For more passive uses (using reclaimed water to water landscaping along streets or landscaping in parks), there is very little opposition to using reclaimed water. For Q18, only 5% percent of all respondents opposed such use, and only 3% strongly opposed such use. Likewise for Q19, 5% of all respondents opposed such use, and only 3% were strongly opposed.

Without being provided additional information about what reclaimed water is or what might be in it, more respondents oppose using it to improve streamflows than oppose allowing it to recharge groundwater.

While Figure 4.7 compared the responses of the entire survey population, Figure 4.8 breaks out responses to Q21 (using reclaimed water to recharge groundwater) by gender and age.

**Figure 4.8 –Crosstabs of Support for Q21**




Comparing the responses of several subgroups to Q21 shows there is little variation in opinions of using reclaimed water to recharge groundwater. The overall support for letting reclaimed water recharge groundwater is 79% among men and 75% among women. This difference is within the Margin of Error and is not statistically significant.

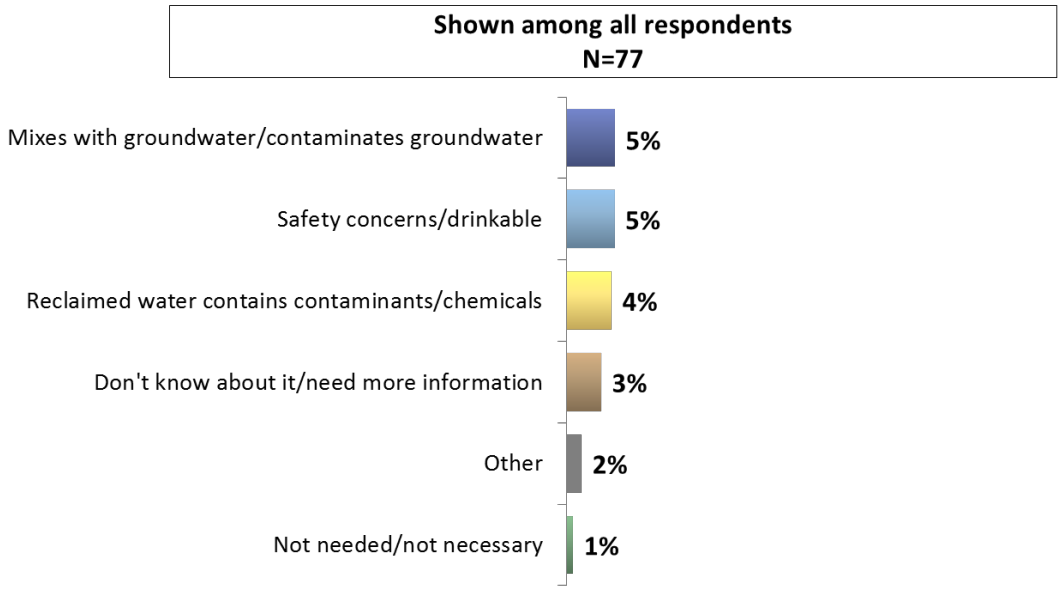
The gap between those under 55 and those 55 and older is somewhat larger. The overall support among those under 55 is 74%, while for those 55+ the overall support is 81%. However, no sub-group seems to adamantly oppose using reclaimed water to recharge groundwater at this point in the survey.

**Question Analyzed.**

*Q22. What are the main reasons you oppose this use? (First Response)*

If respondents indicated in Q21 that they were somewhat or strongly opposed to using reclaimed water to replenish groundwater, they were asked to elaborate why in Q22. This question asked respondents to explain in their own words why they would oppose such a usage. In order to illustrate the magnitude of such opposition, the results for Q22 are shown as a proportion of 400 – the entire survey population – although not everyone was asked this question. Respondents were also able to give multiple responses to this question; however only the first response is included in Figure 4.9.

**Figure 4.9 –Concerns with Reclaimed Water in Groundwater**



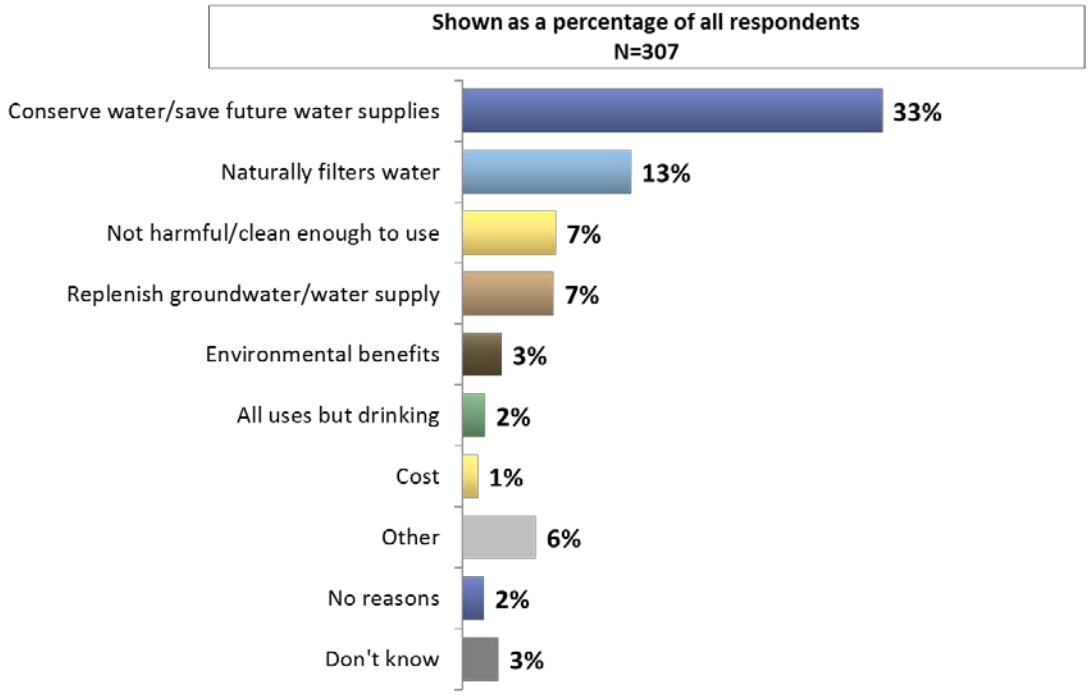

When shown as a percentage of the entire survey population, concerns about using reclaimed water to recharge groundwater are a very small proportion of the overall survey population, indicating that the concerns about this use are very low. The most substantial concern, that it would mix with groundwater or contaminate groundwater, is only mentioned by 5% of survey population. This indicates without additional information, people do not seem to connect the idea of reclaimed water having contaminants in it or potentially coming into contact with their drinking water.

**Question Analyzed.**

*Q23. What are the main reasons you favor this use? (First response)*

Similar to Q22, if respondents answered that they favored using reclaimed groundwater to recharge groundwater, they were then asked to explain why in their own words in Q23. As with Q22, the responses to Q23 are shown as a percentage of 400; however, only respondents who answered Somewhat or Strongly Favored in Q21 were asked this question.

**Figure 4.10 –Support for Putting Reclaimed Water in Groundwater**



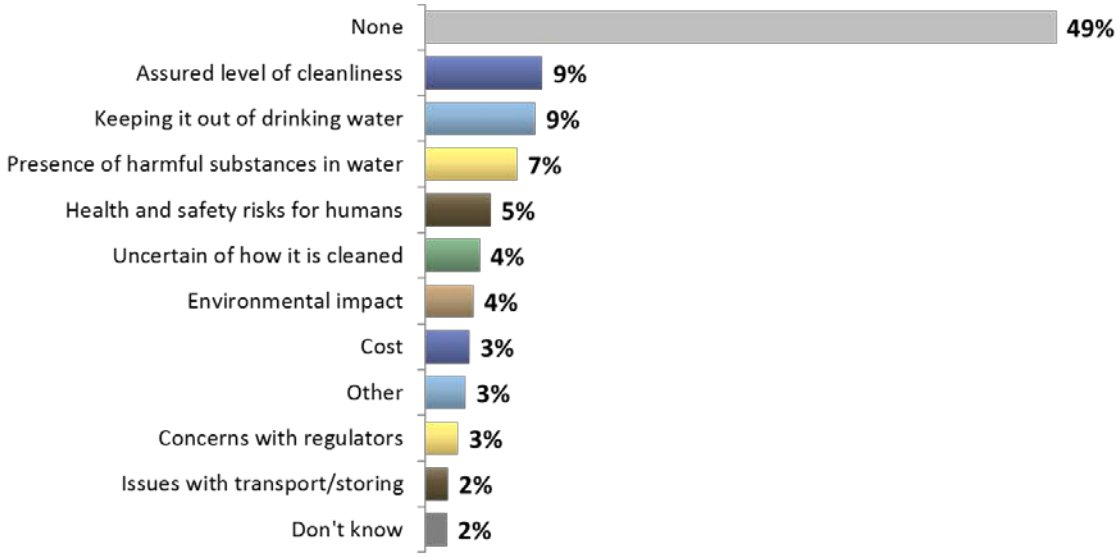

Based on the above responses, it is clear that conserving water or saving future water supplies is a major reason respondents support this use of reclaimed water. If we include the 7% who responded "Replenish groundwater/water supply" then the percentage of people favoring this use for benefits to the water supply approaches 40%. Another 20% indicated that the process was natural and the water clean enough to utilize.

**Question Analyzed.**

*Q24. What concerns or questions, if any, do you have about reclaimed water? (First Response)*

While respondents were asked separately to explain their support or opposition to the use of reclaimed water to replenish groundwater, everyone was asked to explain in their own words what concerns, if any, they had about reclaimed water. This was the last question that sought to gauge the baseline opinion of respondents about reclaimed water before the survey began introducing the idea that contaminants could be present in reclaimed water.

**Figure 4.11 –Unprompted Concerns with Reclaimed Water**




When asked to explain any concerns about reclaimed water before being given any additional information about what could potentially be in it, half of people said they have no concerns about reclaimed water. Those who did have concerns were able to answer with a fair level of specificity about their concerns. After "None", the highest concerns or questions cited had to do with uncertainty with the cleanliness or quality of the water and potential health or environmental risks.

**Findings**

- *About half of all respondents don't know anything about reclaimed water; the other half know what it is to a high level specificity.*
- *Initially, there is more concern about uses of reclaimed water that might affect streams and the environment.*
- *Without prompting, there is very little initial concern about using reclaimed water to recharge groundwater. There is little variation in opinion on using reclaimed groundwater to recharge groundwater among gender and age groups.*
- *Conserving and replenishing future water supplies is a big driver of support for using reclaimed water to recharge groundwater.*
- *Without being provided additional information about what may be in reclaimed water, half of all respondents said they had no concerns about reclaimed water.*

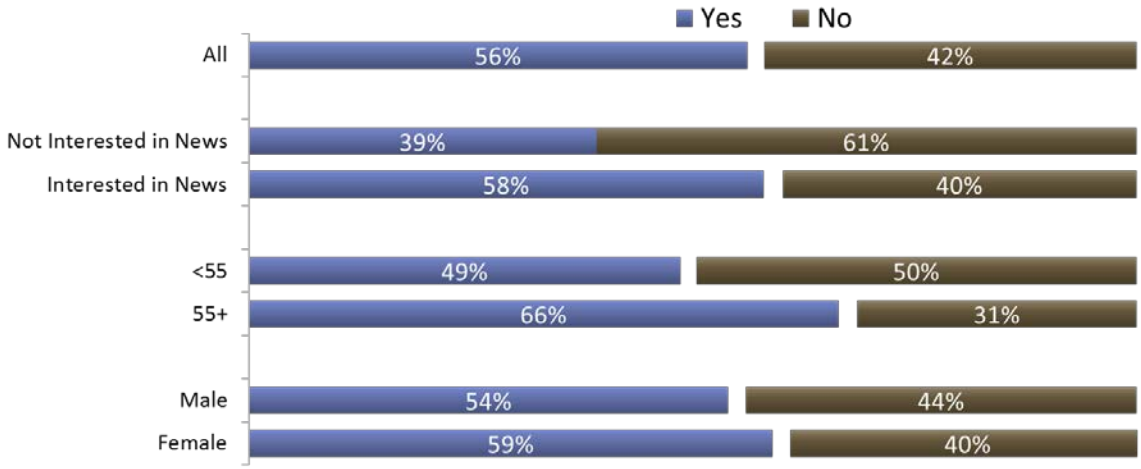
## 4.3 Perceptions after Being Informed

**Question Analyzed.**

*Q25. Have you heard anything about compounds, such as those from medicines, soaps, shampoos, cosmetics, household and yard care products, that may be present in water, wastewater, or reclaimed water?*

Q25 introduces the idea that compounds such as pharmaceuticals or other chemicals could be present in water, wastewater, or reclaimed water. At this point, respondents were just asked to indicate whether or not this was something that had been heard before so that the prevalence of this knowledge could be captured. Figure 4.12 shows not only the responses of the entire survey population, but also compares responses based on gender, age, and engagement with local issues.

**Figure 4.12 –Awareness of Contaminant Presence**



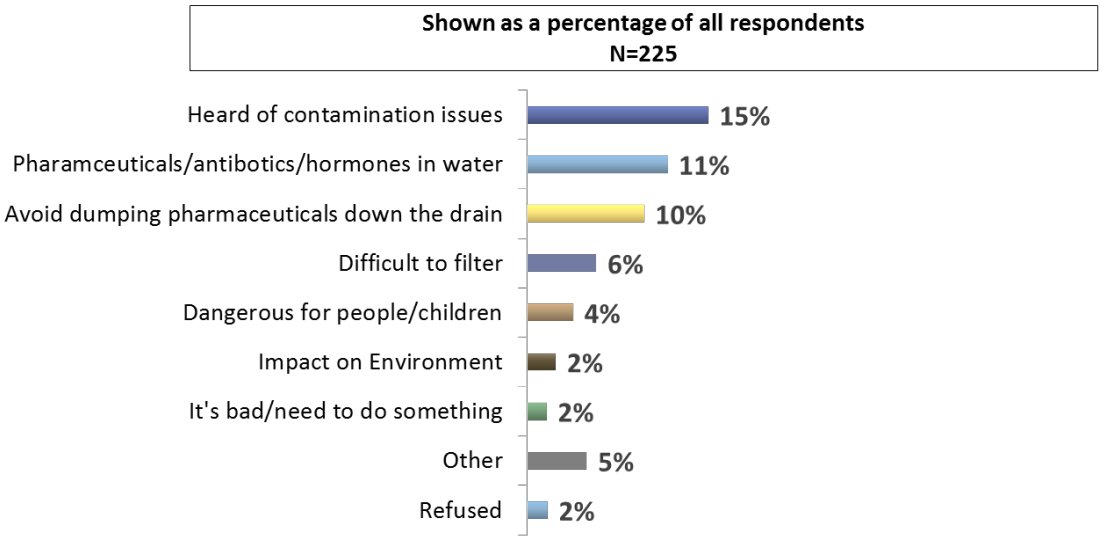

The response to this question indicates that over half of respondents have heard of this issue. However, there are gaps in awareness when comparing several different sub-groups. People who were "Interested in news" were far more aware, with 58% having heard of potential contaminants, compared to only 39% of those who are "Not Interested in news". People 55+ also have a high awareness of the presence of contaminants, with 66% of 55+ respondents having heard this while only 40% of those under 55 had. There initially appears to be a gap in awareness between men and women (54% to 59%), however, accounting for Margin of Error this gap is not statistically significant.

**Question Analyzed.**

*Q26. What have you heard? (First response)*

Respondents who answered "Yes" in Q25 were asked in Q26 to follow that up with what they had heard about contaminants in water, wastewater, or reclaimed water. They were asked to explain in their own words what they had heard. Figure 4.13 shows these responses as a percentage of the entire survey population; however, not everyone was asked this question.

**Figure 4.13 –What is known about Contaminant Presence**



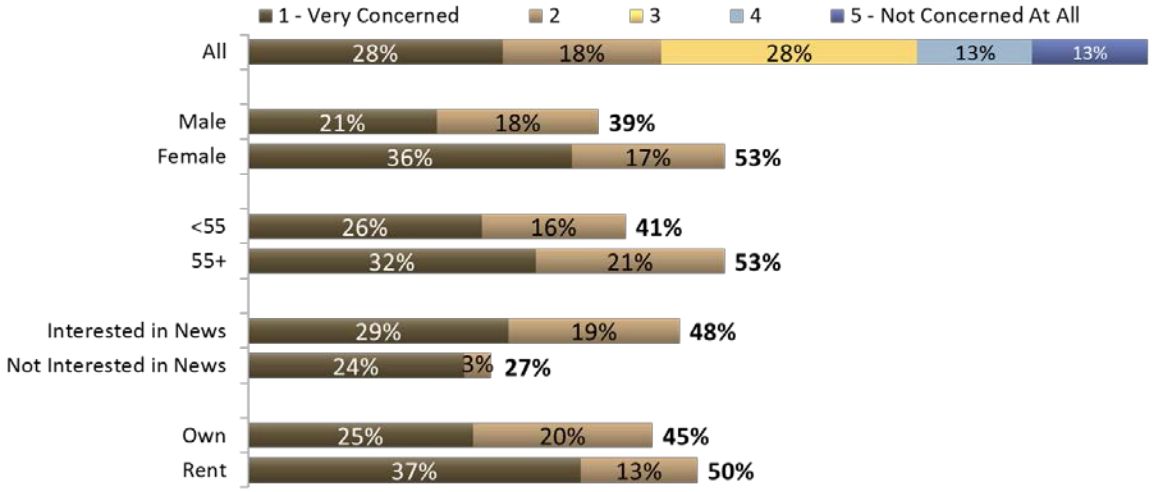

Of the responses to this open-ended question, 15% of respondents report they have heard of contamination issues, and 11% make an even more specific report that they have heard of particular substances such as pharmaceuticals, antibiotics, or hormones being present in water, wastewater, or reclaimed water.

**Question Analyzed.**

*Q27. On a scale of one to five, where one is very concerned and five is not concerned at all, how concerned are you about medicines, soaps, shampoos, cosmetics, or household and yard care products that may be present in water, wastewater, or reclaimed water?*

While Q25 first introduced the idea of contaminants being present in water, wastewater, or reclaimed water, Q27 followed by asking all respondents to rate their level of concern on a scale of one to five. Figure 4.14 shows the responses for the entire survey population, but also shows the frequency of ones and twos (indicating concern) by gender, age, interest in local issues, and homeownership.

**Figure 4.14 –Level of Concern about Contaminant Presence**




After being introduced to additional information about what contaminants may be in water, wastewater, or reclaimed water, the level of concern becomes much higher than earlier in the survey, with 28% of all respondents rating their level of concern at 1.

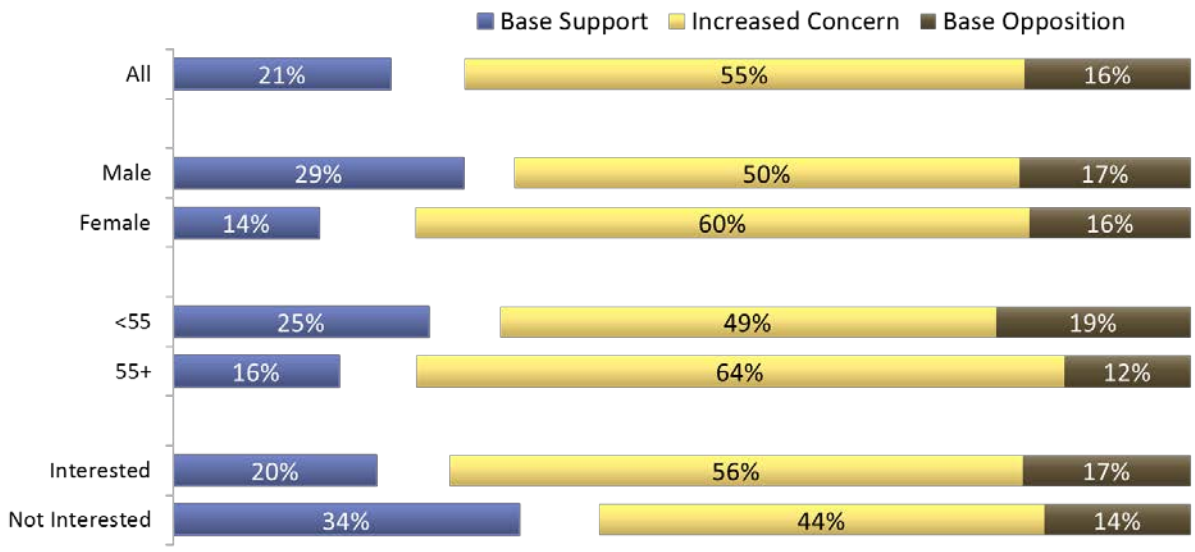
High levels of concern are most abundant among women (36% ranked their concern as a 1), respondents 55+ (32% ranked their concern as a 1), and those interested in the news (29% ranked their concern as a 1).

**Question Analyzed.**

*Changes in Support after Receiving Additional Information (Segmentation of Q21 and Q27)*

Figure 4.15 illustrates this swing of opinion. Those categorized as Base Support were respondents who Somewhat or Strongly Supported using reclaimed water to recharge groundwater in Q21, and ranked their concern about contaminants as a 4 or a 5 in Q27. Those categorized as Base Opposition were respondents who Somewhat or Strongly Opposed using reclaimed water to recharge groundwater in Q21, and ranked their concern about contaminants as a 1, 2, or 3 in Q27. The middle category, Increased Concern, are people whose opinion shifted after being informed about the presence of contaminants in water, wastewater, or reclaimed water. If a respondent indicated that they Somewhat or Strongly Supported using reclaimed water to recharge in Q21, but by Q27 ranked their concern about contaminants as a 1, 2, or 3, they were considered an Increased Concern. When looking at the entire survey population, 55% fall into this Increased Concern category.

**Figure 4.15 –Changes in Support**



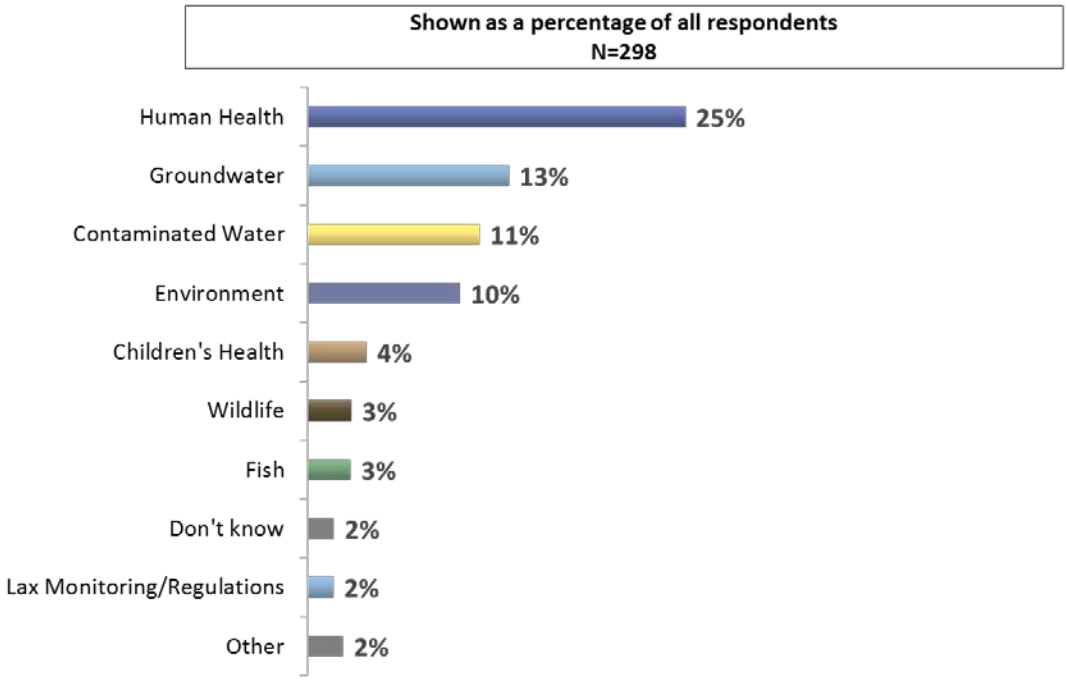

The responses to Q21 and Q27 are not directly comparable as the earlier question asked respondents directly about their opinions on reclaimed water, and the later question asked about contaminants more broadly in water, wastewater, or reclaimed water. Nonetheless, it can be inferred that as people's awareness grows regarding the potential presence of contaminants, so too will their concern.

**Question Analyzed.**

*Q28. What is your main concern?*

If respondents answered a 1 to 3 on the previous question, they were then asked to answer in their own words what they found most concerning. This is shown below in Figure 4.16. While the entire survey sample of 400 was not asked this question, their responses are shown as a proportion of 400 to illustrate the magnitude of these concerns.

**Figure 4.16 –Specific Concerns with Contaminants**

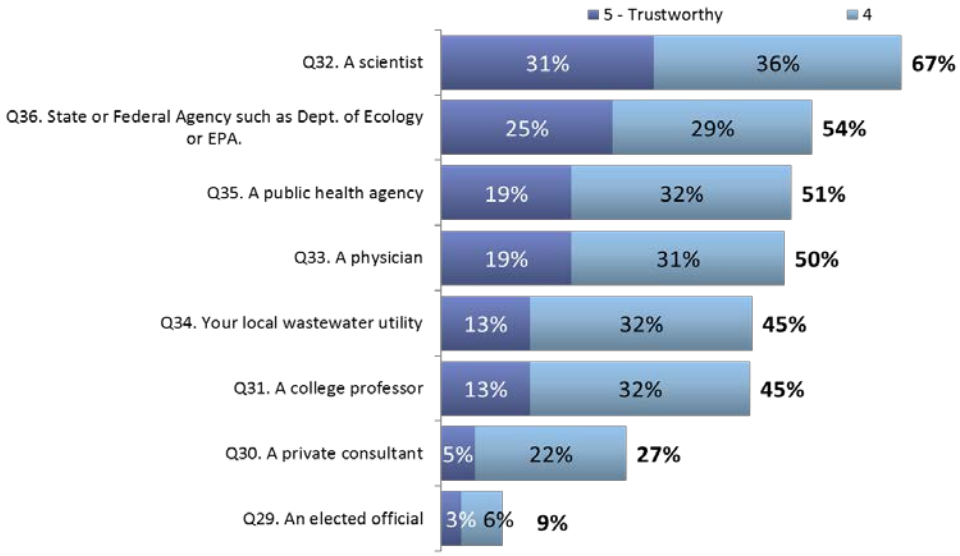



A quarter of all respondents (25%) mentioned human health as their reason for being concerned about contaminants in water, wastewater, or reclaimed water. Including children's health (4%) with general human health concerns, that proportion edges even higher. The focus on human health after being informed about contaminants stands in contrast to what was found earlier in the survey, when the uninformed opinion seemed to indicate ecological impacts were more concerning than human health impacts. In comparison, concerns about ecological impacts are much smaller in relation to all concerns. General environmental concerns constitute 10%, wildlife 4% of all responses, and fish only 3%. While human health may not be something that occurs to respondents before learning about compounds of potential concern, upon learning more it becomes a prevalent concern.

A battery of questions sought to understand who was perceived to be the most trustworthy source of information about reclaimed water. Before being asked a battery of questions, respondents were read the following text:

> *I'm going to ask you who you would trust most to talk about the science, treatment, and use of reclaimed water. For each of the following people and organizations, please tell me how trustworthy you think that person or organization is on this issue. Please use a scale from one to five where one is not at all trustworthy and five is very trustworthy.*

**Figure 4.17 –Trustworthiness of Sources of Information**




The most trusted source of information is a generic, unaffiliated scientist. The total percent of all respondents who selected a 4 or 5 in how strongly they trust a scientist is 67%. This would indicate that the best individual or organization to educate the public about reclaimed water would not be LOTT or an elected official, but an independent scientist or a state or federal environmental agency.

**Finding**

- ***There is a high unawareness that contaminants could be in water, wastewater, or reclaimed water.***
- ***Upon learning about the presence of contaminants, the proportion of respondents with concerns rises.***
- ***Concerns about compounds of potential concern focus largely on potential human health impacts.***
- ***A scientist or representative from an agency such as the EPA or Dept. of Ecology is considered the most trustworthy source(s) of information.***

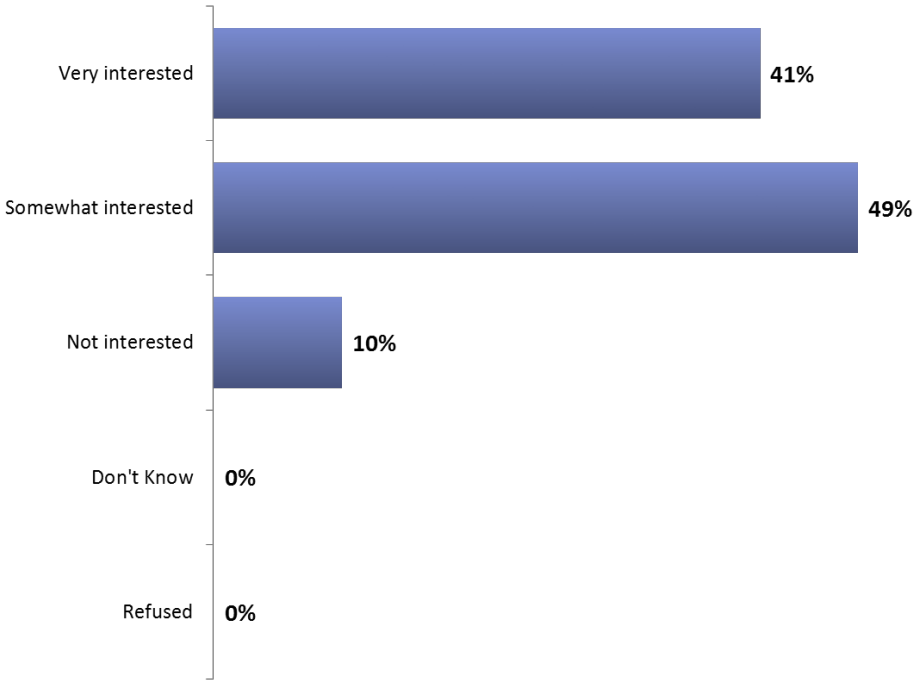
## 4.4 Demographics and Survey Population Characteristics

The following are statistical demographic questions, such as age, gender, residential type, or presence of children in the home. These questions help characterize the survey population.

**Question Analyzed.**

*Q37. How interested are you in local news and information?*

**Figure 4.18 – Interest in News**



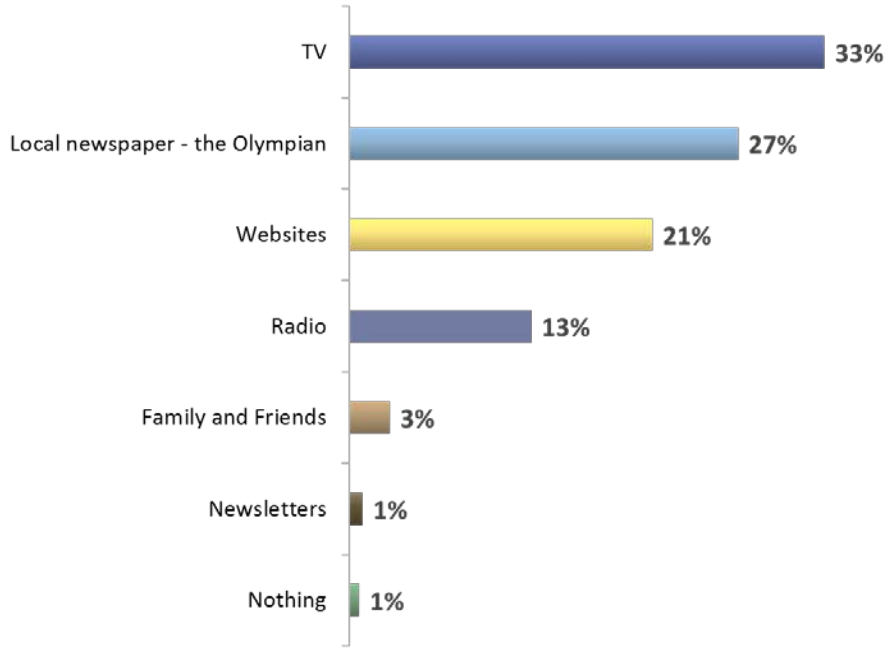

Most survey respondents indicated they had some level of interest in local news. 41% of survey respondents indicated they were very interested in local news and information, and an additional 49% reported they were somewhat interested in local news and information. Only 10% of respondents said they had no interest in local news and information.

**Question Analyzed.**

*Q38. What are the top two ways you usually get local news and information?*

Respondents were asked to describe, in their own words, the top two sources from which they get their local news. A number of predetermined codes had been developed to categorize their responses.

**Figure 4.19 – Source of News**



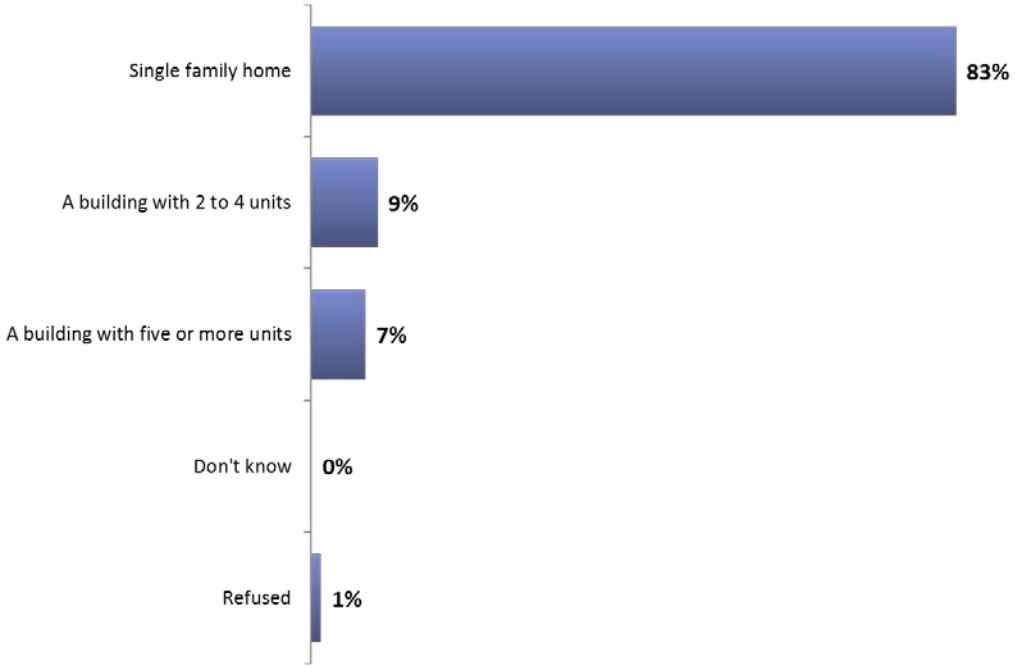

Survey respondents gain their news from one of only a few sources. When looking at the first response to Q38 (respondents were allowed to name up to two sources), 33% said TV was their first source of local information, followed by The Olympian at 27%, and then the Internet at 21%.

**Question Analyzed.**

*Q40. Do you live in a…*

Respondents were asked if they lived in a single family dwelling, a smaller multi-unit building, or a large multi-unit dwelling.

**Figure 4.20– Type of Housing**

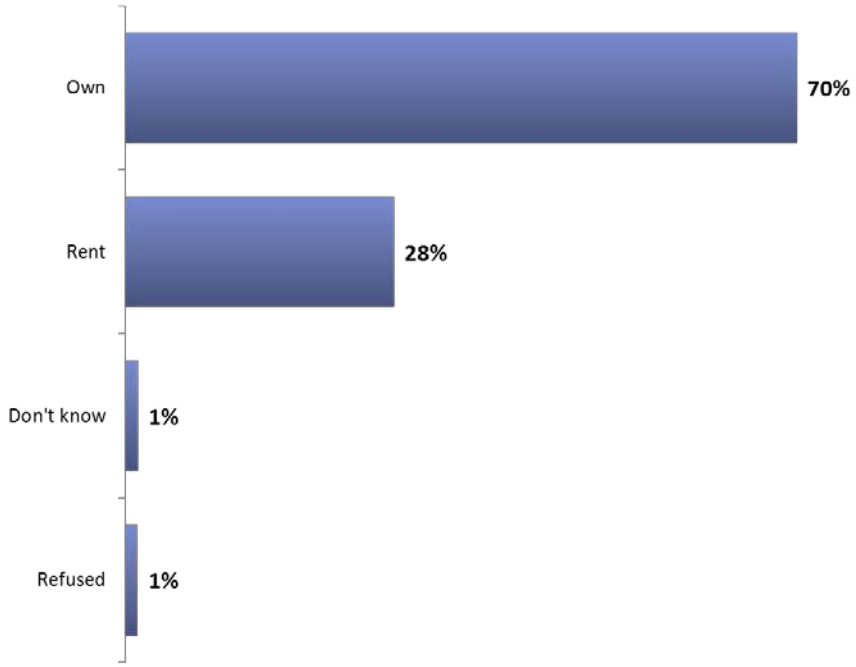



Most all respondents, 83%, live in a single family dwelling.

**Question Analyzed.**

*Q40. Do you own or rent your apartment or home?*

**Figure 4.21– Own or Rent**



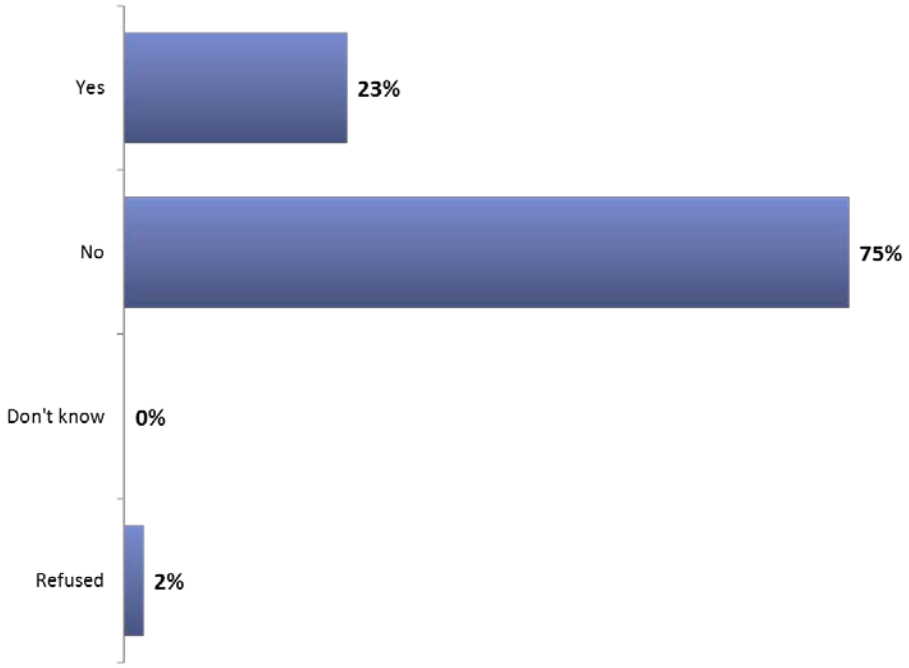

The majority of respondents, 70%, own their own home.

**Question Analyzed.**

*Q41. Do you have any children under the age of 10 living in your home?*

The survey attempted to determine those who had young children, or children under the age of ten, to see if they might have a different opinion of reclaimed water than those without young children.

**Figure 4.22– Children at Home**

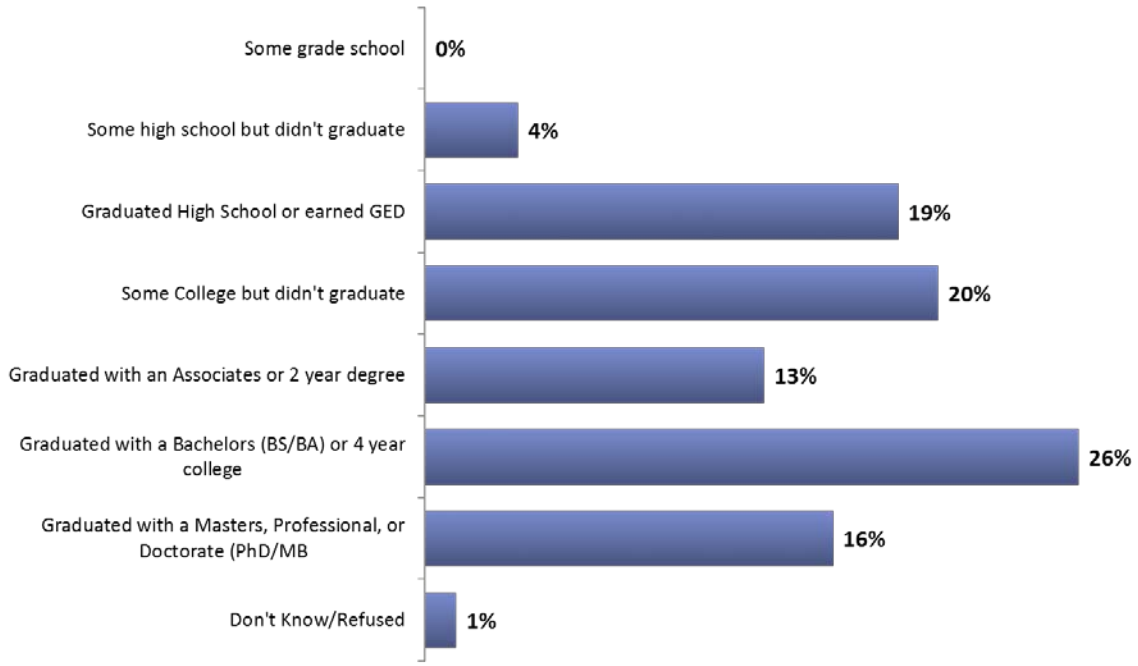



The majority of respondents, 75%, do not have young children (10 or younger) living at home.

**Question Analyzed.**

*Q42. What is the last grade you completed in school?*

**Figure 4.23– Education**

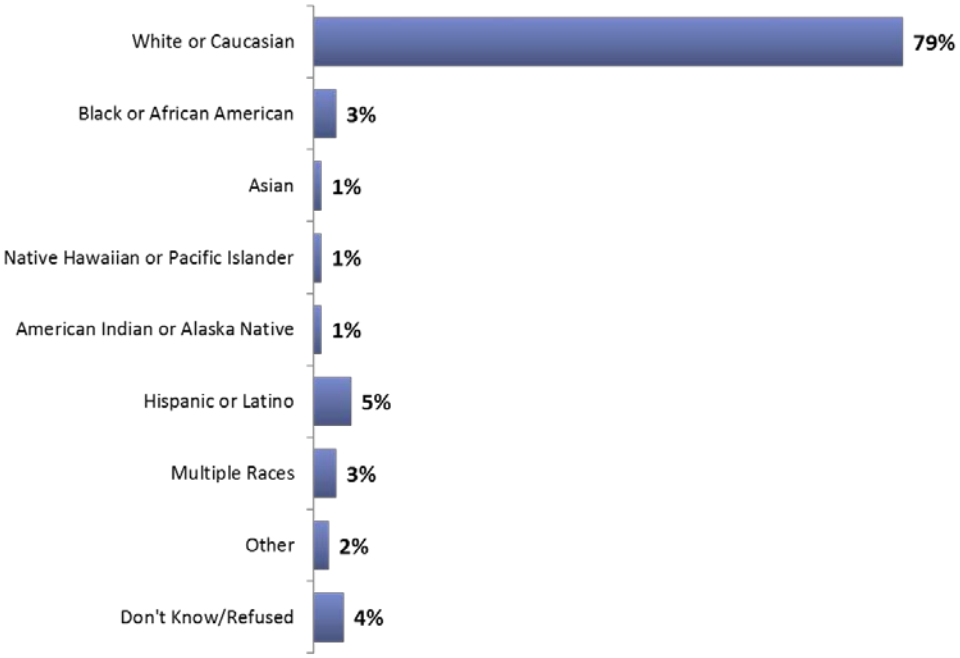



The survey captured a wide range of educational attainment. 19% of the survey population's highest degree was a high school diploma or GED, 20% have some college but no degree, 13% have an AA or other 2 year degree, 26% have a 4 year degree, and 16% have a graduate degree.

**Question Analyzed.**

*Q43. What race would you classify yourself as?*

**Figure 4.24– Race/Ethnicity**




The majority of respondents, 79%, reported themselves as White or Caucasian.

## 5.1 Survey with Results

# LOTT Clean Water Alliance

**Telephone Survey of Residents 18 or Older**
**in LOTT Clean Water Alliance District**
**n=400; Margin of Error (MoE) = ±4.9 points**
**March 5-10, 2013**
**EMC #13-4810**

Hello, my name is _____, and I'm conducting a survey for EMC Research to find out how people in the area feel about some issues facing Thurston County. This is not a sales or telemarketing call, and I am not asking for a donation of any kind. Your answers to this survey are strictly confidential and will be used for research purposes only.

1. Can I speak to the youngest male at home right now? (**PROMPT IF NEEDED)**: over the age of 18?
    1. Yes➔ **CONTINUE**
    2. No➔ **IS THERE ANOTHER PERSON AGE 18 OR OVER AVAILABLE**

2. Gender **(BY OBSERVATION)**

| | |
|---|---|
| Male | 49% |
| Female | 51% |

3. What year were you born? (REFUSED=99999)

   [**RECORD YEAR: Valid Range 1910-1995]**

4. Age

| | |
|---|---|
| 18-24 | 10% |
| 25-34 | 15% |
| 35-44 | 13% |
| 45-54 | 19% |
| 55-64 | 19% |
| 65+ | 22% |
| Refused | 1% |

5. Just to be sure we're calling the correct area, what is your zip code? **[DO NOT READ – ACCEPT ONE RESPONSE]**

| | |
|---|---|
| 98501 | 21% |
| 98502 | 6% |
| 98503 | 23% |
| 98506 | 10% |
| 98512 | 9% |
| 98513 | 16% |
| 98516 | 15% |
| Other/Don't Know/Refused | 0% |

**[IF Q5=2, ASK Q6. IF Q5=5, ASK Q7. IF ELSE OTHER THAN 8, SKIP TO Q8]**

6. (IF 98502) Are you east or west of Delphi (DELL-fhye) Road?

| | |
|---|---|
| East | 100% |
| West/Don't know | 0% |

**[SKIP TO Q6]**

7. (IF 98512) Are you east or west of the waterways of Mudd Bay or Eld Inlet?

| | |
|---|---|
| East | 100% |
| West/Don't know | 0% |

**(RESUME ASKING EVERYONE)**

8. To begin, what do you think is the most important environmental issue facing the area?

**(TAKE ONE RESPONSE)**

| | |
|---|---|
| Water quality (general) | 30% |
| Overdevelopment/population | 11% |
| Climate issues | 8% |
| Air quality | 6% |
| Water quality in Puget Sound | 5% |
| Trash/litter | 5% |
| Economic/Political issues | 5% |
| General pollution | 4% |
| Transportation | 3% |
| Wildlife | 2% |
| Renewable energy | 1% |
| Other | 3% |
| Don't know | 17% |
| Refused | 0% |

9. Moving on, do you have a favorable or unfavorable opinion of the LOTT (**LOT, as in a lot of something**) Clean Water Alliance, or have you never heard of LOTT? **[NOTE: If respondent says "Don't know," "No opinion," or something similar that is not Favorable/Unfavorable, probe for Can't Rate/Never Heard: "Would you say that you have heard of LOTT but cannot rate LOTT or have you never heard of LOTT?"]**

| | |
|---|---|
| Favorable | 34% |
| Unfavorable | 6% |
| Can't Rate | 18% |
| Never Heard | 42% |

**[IF Q9=4 "DON'T KNOW" SKIP TO Q11, ELSE ASK Q10]**

10. How would you describe what the LOTT Clean Water Alliance does? **(ACCEPT TWO RESPONSES)**

| | |
|---|---|
| Cleans sewer/wastewater | 31% |
| Wastewater/Water management | 28% |
| Protects environment | 11% |
| Monitors water quality/complies with regulations | 7% |
| Education/community outreach | 6% |
| Storm water management | 5% |
| Cooperation between jurisdictions | 4% |
| Too costly | 3% |
| Other | 3% |
| No Reason | 0% |
| Don't know | 28% |
| Refused | 0% |

**[RESUME ASKING EVERYONE]**

11. From what you know, what is the source of the drinking water in your tap at home**? (DO NOT READ – ACCEPT ONE RESPONSE)**

| | |
|---|---|
| Groundwater | 45% |
| City/Municipal/County | 11% |
| Rivers and lakes | 10% |
| Mountain reservoirs | 4% |
| McCallister Springs | 3% |
| Other | 3% |
| Puget Sound | 1% |
| Budd Inlet | 0% |
| Don't know | 23% |
| Refused | 1% |

12. And who or what provides your drinking water? **(READ LIST – ACCEPT ONE RESPONSE)**

| | |
|---|---|
| City service | 66% |
| Private well | 26% |
| Other | 6% |
| Don't know | 2% |

**[IF Q12=1 "City service" ASK Q13; ELSE SKIP TO Q14]**

13. Which city? **(READ LIST – ACCEPT ONE RESPONSE)**

| | |
|---|---|
| Lacey | 51% |
| Tumwater | 10% |
| Olympia | 38% |
| A different city | 1% |
| Don't know | 1% |
| Refused | 0% |

**[RESUME ASKING EVERYONE]**

14. Does your home have a septic system or are you connected to a public sewer system for wastewater collection and treatment? **(READ LIST - ACCEPT ONE RESPONSE)**

| | |
|---|---|
| Septic | 48% |
| Public sewer system | 51% |
| Don't know | 1% |
| Refused | 0% |

**[IF Q14=2 "Public Sewer System" ASK Q15; ELSE SKIP TO Q17]**

15. Which system are you connected to? **(READ FIRST THREE - ACCEPT ONE RESPONSE)**

| | |
|---|---|
| Lacey | 50% |
| Tumwater | 11% |
| Olympia | 33% |
| A different city | 2% |
| Don't know | 4% |
| Refused | 0% |

**[IF Q15=4 ASK Q16; ELSE SKIP TO Q17]**

16. Which system?

| | |
|---|---|
| LOTT | 50% |
| Beverely Beach | 0% |
| Tamoshan | 0% |
| Other | 50% |
| Don't know | 0% |
| Refused | 0% |

**[RESUME ASKING EVERYONE]**

17. What, if anything, have you heard about reclaimed water? **(ACCEPT TWO RESPONSES)**

| | |
|---|---|
| Nothing | 26% |
| Used for irrigation/water grass/parks | 16% |
| Cleaned/filtered water | 13% |
| Can't drink it/use for other purposes only | 7% |
| Treated sewage/wastewater | 6% |
| Rain/run-off collection | 5% |
| Used in other places | 5% |
| Good/like it | 5% |
| Reuse/recycle | 3% |
| Treatment plants | 2% |
| Don't like/gross | 1% |
| Not needed here/not used here | 1% |
| Other | 3% |
| Don't know | 24% |
| Refused | 2% |

I'm going to ask you about some potential uses for reclaimed water in your community. Reclaimed water is wastewater that is treated and cleaned so that it can be used again for almost any use except drinking. Please tell me if you strongly oppose, somewhat oppose, somewhat favor or strongly favor each of the potential uses of reclaimed water. [**AFTER EACH UNTIL UNDERSTOOD:** Do you oppose or favor that use for reclaimed water? **IF OPPOSE:** Would that be strongly or somewhat oppose? **IF FAVOR:** Would that be strongly or somewhat favor?

| SCALE: | Strongly oppose | Somewhat oppose | Somewhat favor | Strong favor | Don't know/Und. | Refused | Total Oppose | Total Favor |
|---|---|---|---|---|---|---|---|---|
| **[RANDOMIZE]** | | | | | | | | |
| 18. Watering landscaping at golf courses and along streets and buildings | 3% | 2% | 22% | 72% | 1% | 0% | **5%** | **94%** |
| 19. Watering landscaping at parks and ballfields | 3% | 3% | 21% | 72% | 2% | 0% | **5%** | **93%** |
| 20. Putting it into streams and rivers to improve streamflows | 17% | 17% | 32% | 27% | 7% | 0% | **35%** | **58%** |
| **[END RANDOMIZE]** | | | | | | | | |
| 21. Reclaimed water can also be used for groundwater recharge by allowing the water to slowly filter through the soil, just like rain, until it reaches and replenishes groundwater. Do you strongly oppose, somewhat oppose, somewhat favor or strongly favor using reclaimed water for groundwater recharge? | 7% | 13% | 41% | 36% | 4% | 0% | **19%** | **77%** |

**[IF Q21= 1 "Strongly Oppose" OR 2 "Somewhat Oppose" ASK Q22]**

**[IF Q21= 3 "Somewhat favor" OR 4 "Strongly Favor" ASK Q23]**

22. What are the main reasons you oppose this use? **(ACCEPT TWO RESPONSES)**

| | |
|---|---|
| Mixes with groundwater/contaminates groundwater | 33% |
| Safety concerns/drinkable | 30% |
| Reclaimed water contains contaminants/chemicals | 29% |
| Don't know about it/need more information | 22% |
| Not needed/not necessary | 4% |
| Other | 10% |
| No Reasons | 0% |
| Don't know | 0% |
| Refused | 0% |

**[IF Q21= 3 "Somewhat Favor" OR 4 "Strongly Favor" ASK Q23, ELSE SKIP TO Q24]**

23. What are the main reasons you favor this use? **(ACCEPT TWO RESPONSES)**

| | |
|---|---|
| Conserve water/save future water supplies | 47% |
| Naturally filters water | 20% |
| Not harmful/clean enough to use | 16% |
| Replenish groundwater/water supply | 11% |
| Other | 8% |
| Cost | 5% |
| Environmental benefits | 5% |
| All uses but drinking | 3% |
| No reasons | 2% |
| Don't know | 4% |
| Refused | 0% |

**[RESUME ASKING EVERYONE]**

24. What concerns or questions, if any, do you have about reclaimed water? **(ACCEPT TWO RESPONSES)**

| | |
|---|---|
| None | 49% |
| Assured level of cleanliness | 12% |
| Keeping it out of drinking water | 10% |
| Presence of harmful substances in water | 10% |
| Environmental impact | 8% |
| Health and safety risks for humans | 8% |
| Uncertain of how it is cleaned | 5% |
| Cost | 4% |
| Other | 4% |
| Concerns with regulators | 3% |
| Issues with transport/storing | 2% |
| Don't know | 2% |
| Refused | 0% |

25. Have you heard anything about compounds, such as those from medicines, soaps, shampoos, cosmetics, household and yard care products, that may be present in water, wastewater, or reclaimed water?

| | |
|---|---|
| Yes | 56% |
| No | 42% |
| Don't Know/Not Sure | 2% |
| Refused | 0% |

**[IF Q25= 1 "Yes" ASK Q26; ELSE SKIP TO Q27]**

26. What have you heard? **(ACCEPT ONE RESPONSE)**

| | |
|---|---|
| Heard of contamination issues | 33% |
| Pharmaceuticals/antibiotics/hormones in water | 24% |
| Avoid dumping pharmaceuticals down the drain | 19% |
| Dangerous for people/children | 15% |
| Difficult to filter | 13% |
| Impact on Environment | 12% |
| Avoid dumping household chemicals down the drain | 7% |
| It's bad/need to do something | 4% |
| Fertilizer run-off | 3% |
| Pesticide run-off | 2% |
| Nothing Specific | 2% |
| Other | 2% |
| Don't know | 1% |
| Refused | 3% |

**(RESUME ASKING EVERYONE)**

27. On a scale of one to five, where one is very concerned and five is not concerned at all, how concerned are you about medicines, soaps, shampoos, cosmetics, or household and yard care products that may be present in water, wastewater, or reclaimed water?

| | |
|---|---|
| Very Concerned | 28% |
| 2 | 18% |
| 3 | 28% |
| 4 | 13% |
| Not concerned at all | 12% |
| Don't know | 1% |
| Refused | 0% |

**[IF Q27 = 1 OR 2 OR 3 ASK Q28; ELSE SKIP TO Q29]**

28. What is your main concern? **(DO NOT READ LIST - ACCEPT MULTIPLE RESPONSES)**

| | |
|---|---|
| Human Health | 39% |
| Groundwater | 21% |
| Environment | 21% |
| Contaminated Water | 16% |
| Children's Health | 14% |
| Wildlife | 13% |
| Fish | 9% |
| Don't know | 2% |
| Lax Monitoring/Regulations | 2% |
| Drinking Water | 2% |
| Other | 2% |
| Pets | 1% |
| Refused | 0% |

**[RESUME ASKING EVERYONE]**

I'm going to ask you who you would trust most to talk about the science, treatment, and use of reclaimed water. For each of the following people and organizations, please tell me how trustworthy you think that person or organization is on this issue. Please use a scale from one to five where one is not at all trustworthy and five is very trustworthy. (**REPEAT AFTER EACH UNTIL UNDERSTOOD**) Use a scale from one to five where one is not at all trustworthy and five is very trustworthy.

How trustworthy do you find **(INSERT STATEMENT)**

| **SCALE:** | **1. Not At All Trustworthy** | **2** | **3** | **4** | **5. Very Trustworthy** | **Don't know/Ref.** | **Total Untrustworthy** | **Total Trustworthy** |
|---|---|---|---|---|---|---|---|---|
| **[RANDOMIZE]** | | | | | | | | |
| 29. An elected official | 39% | 29% | 22% | 6% | 3% | 1% | **67%** | **9%** |
| 30. A private consultant | 15% | 24% | 32% | 22% | 5% | 2% | **39%** | **26%** |
| 31. A college professor | 8% | 13% | 32% | 32% | 13% | 2% | **39%** | **26%** |
| 32. A scientist | 3% | 7% | 22% | 36% | 31% | 1% | **10%** | **67%** |
| 33. A physician | 5% | 12% | 31% | 31% | 19% | 2% | **18%** | **50%** |
| 34. Your local wastewater utility | 6% | 15% | 32% | 32% | 13% | 2% | **21%** | **45%** |

| SCALE: | 1. Not At All Trustworthy | 2 | 3 | 4 | 5. Very Trustworthy | Don't know/Ref. | Total Untrustworthy | Total Trustworthy |
|---|---|---|---|---|---|---|---|---|
| 35. A public health agency | 6% | 11% | 31% | 32% | 19% | 1% | **17%** | **51%** |
| 36. A state or federal environmental agency such as the Department of Ecology or the US Environmental Protection Agency | 12% | 12% | 22% | 29% | 25% | 0% | **24%** | **54%** |

**[END RANDOMIZE]**

37. How interested are you in local news and information? Would you say you are **(READ LIST)**

| | |
|---|---|
| Very interested | 41% |
| Somewhat interested | 49% |
| Not interested | 10% |
| Don't Know | 0% |
| Refused | 0% |

38. What are the top two ways you usually get local news and information? **(DO NOT READ – ACCEPT TWO RESPONSES).**

| | |
|---|---|
| TV | 62% |
| Websites | 47% |
| Local newspaper - the Olympian | 39% |
| Radio | 25% |
| Family and Friends | 8% |
| Newsletters | 2% |
| Mobile Device | 2% |
| Mailings | 1% |
| Facebook | 1% |
| Public Meetings | 1% |
| Other | 1% |
| Email | 1% |
| Twitter | 0% |
| Utility Bills | 0% |
| Nothing | 1% |
| Don't know | 0% |
| Refused | 0% |

Now, I'd like to ask you some questions for statistical purposes only.

39. Do you live in a **(READ RESPONSES)**

| | |
|---|---|
| Single family home | 83% |
| A building with 2 to 4 units | 9% |
| A building with five or more units | 7% |
| Don't know | 0% |
| Refused | 1% |

40. Do you own or rent your apartment or home?

| | |
|---|---|
| Own | 70% |
| Rent | 28% |
| Don't know | 1% |
| Refused | 1% |

41. Do you have any children under the age of 10 living in your home?

| | |
|---|---|
| Yes | 23% |
| No | 75% |
| Don't know | 0% |
| Refused | 2% |

42. What is the last grade you completed in school? **(READ CODES IF NECESSARY)**

| | |
|---|---|
| Some grade school | 0% |
| Some high school but didn't graduate | 4% |
| Graduated High School or earned GED | 19% |
| Some College but didn't graduate | 20% |
| Graduated with an Associates or 2 year degree | 13% |
| Graduated with a Bachelors (BS/BA) or 4 year college | 26% |
| Graduated with a Masters, Professional, or Doctorate (PhD/MBA) | 16% |
| Don't Know/Refused | 1% |

43. What race would you classify yourself as? **(READ CODES IF NECESSARY)**

| | |
|---|---|
| White or Caucasian | 79% |
| Black or African American | 3% |
| Asian | 1% |
| Native Hawaiian or Pacific Islander | 1% |
| American Indian or Alaska Native | 1% |
| Hispanic or Latino | 5% |
| Multiple Races | 3% |
| Other | 2% |
| Don't Know/Refused | 4% |

**THANK YOU!**