SEATTLE PUBLIC UTILITIES AND ITS WHOLESALE PURVEYORS 1999 WATER CONSERVATION SURVEY

Final Report

Prepared for:

Seattle Public Utilities and Its Wholesale Purveyors

Prepared by:

Linda Dethman

DETHMAN & TANGORA LLC

1719 Bigelow Ave. N.

Seattle, WA 98109

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EXECUTIVE SUMMARY

Study Purposes

This study is part of an ongoing effort by Seattle Public Utilities and its wholesale Purveyors to understand, track, and address the needs of residential customers with regard to water conservation. The goals of the 1999 research were to:

➢ Identify and evaluate changes in perceptions, attitudes, and behaviors of residential customers toward water conservation

➢ Help guide effective programs to foster and achieve conservation among residential customers

Residential customers account for over half of SPU's total water consumption. With a mandate to step up water conservation efforts in the coming years, understanding and serving residential consumers is central to meeting conservation goals.

Methods

Seattle Public Utilities hired Dethman & Tangora LLC, a market research firm in Seattle, to conduct the research. Telephone interviews with a randomly selected, representative sample of 603 residential customers from Seattle and 620 residential customers from Purveyor service areas were conducted during October, 1999. The following margins of error and confidence intervals apply:

➢ **Overall Population Sample = 1223**. This sample has been weighted to reflect the relative proportions of Seattle (45%) and Purveyor (55%) populations. A sample of this size carries a +/– 2.9% margin of error with 95% confidence.

➢ **Seattle Sample = 603,** carries a +/– 4.1% margin of error with 95% confidence.

➢ **Purveyor Sample = 620,** carries a +/– 4.1% margin of error with 95% confidence.

The 1999 survey represents all residential households, both single family and multi-family. To show changes in customer views and behavior over time, this report compares 1994 survey data, which included only single family households, to 1999 single family household data.

Key Findings

Key population findings, as well as notable differences between Seattle and Purveyor customers, are highlighted in this section. More detailed information can be found in the main body of the report and the appendices.

Demographics and Household Characteristics

➢ The vast majority of customers are homeowners, living in single family homes, Caucasian, and at least 35 years of age, as these statistics show:

- Three quarters (75%) are homeowners, although Seattle customers are more likely to rent than Purveyor customers are.

- 78% live in single family dwellings, with Seattle customers more often living in multi-family dwellings.

- 61% live in 1 or 2 person households.

- 80% are 35 years of age or older.

- 83% are Caucasian, with Seattle having a slightly higher minority population.

➢ Income is more varied, with just over half of customers (53%) having annual family incomes between $25,000 and $50,000, a quarter having incomes over $75,000, and a fifth having incomes below $25,000. Purveyor customers have somewhat higher incomes than Seattle customers do.

➢ Two-thirds of customers (67%) who live in single family homes report their lots are 10,000 square feet or less.

- Purveyor customers are much more likely to live on lots of ¼ acre or more and are more likely to have yards than Seattle customers.

Attitudes About Water Conservation

➢ Customers are generally concerned about water supply and conservation, and believe that their actions can help solve water supply problems.

- 62% of customers are very or somewhat concerned that major water supply problems will face their communities over the next 5 years, due to population growth and finite water supplies. However, they are significantly less concerned than in the 1994 survey, when they had recently experienced drought conditions (84% very or somewhat concerned).

- 87% of customers feel their individual actions can greatly affect (42%) or somewhat affect (45%) whether we have enough water.

- 91% believe it's important for their households to actively conserve water (49% very important, 42% somewhat important).

- 15% of all customers feel they can save a great deal more water (over 10%) in their households more, while 29% feel they can save somewhat more (5-10%). Seattle customers feel they can save a little more than Purveyor customers.

Motivations to Save Water

➢ Protecting the environment appears as the strongest component in customer motivations to save water. Although customers rated all four of the following motivations quite highly, they still discriminated among them:

- 66% said they would be very likely to conserve water if they knew it would **protect the environment**

- 60% said **delaying the development of more costly supplies** would be very likely to motivate them.

- 55% said they were motivated by **having enough water for people and salmon**

- 52% said that **saving money on their water bills** would very likely affect their behavior

➢ When asked to choose the single most important reason to conserve water, the vast majority (61%) chose protecting the environment (see **Figure 1**).

Figure 1 - Single Most Important Reason To Save Water

Which one is the single most important reason for taking steps to save water? (N=1223)

None are important 1%
DK 2%
Have enough for salmon 11%
Save money 15%
Delay development 10%
Protect environment 61%
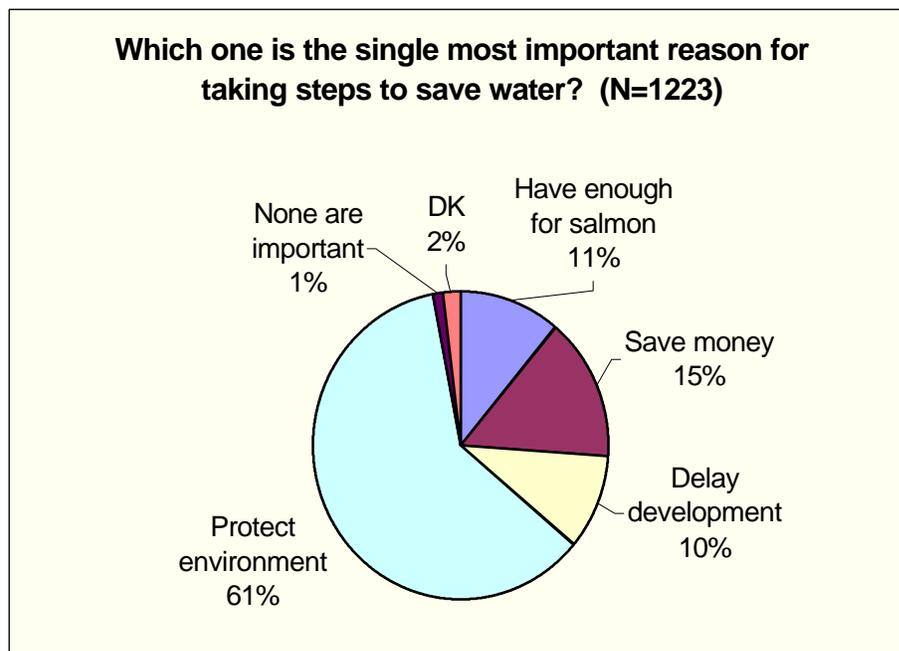
➢ When asked about what one word among six read to them they would like to see or hear in messages about managing resources, they chose familiar terms most

often: environmental (22%) and conservation (25%), and natural (13%) or naturally (10%). Only 15% said "sustainable" and 9% said "salmon friendly."

➢ When asked to put in their own words why they should save, protecting the earth for future generations, environmental stewardship, and, simply, "the environment" were all strongly mentioned.

Water Conservation Knowledge and Behaviors

Indoor Water Use

➢ While two-thirds (67%) of customers report they have installed low-flow showerheads, only half (52%) report they take showers of 5 minutes or less.

➢ Less than half (48%) of customers are aware that toilet flushing is one of two largest indoor water uses.

   • Seattle customers chose this as a top use significantly more often than Purveyor customers (52% to 45%).

➢ About a third of customers have one toilet 35%, while 37% have two, and 25% have three.

   • Purveyor customers have significantly more toilets than Seattle customers.

➢ 60% generally flush the toilet with every use

   • Purveyor customers are significantly more likely to flush with every use (67%) than Seattle customers (52%).

➢ 64% of customers check their toilets for leaks

   • Seattle customers are significantly less likely to check their toilets for leaks (57%) than Purveyor customers (71%).

➢ Less than a (29%) third of households report they have replaced 1 or more toilets since 1993 (when the plumbing code changed to require low-flow toilets).

➢ Most customers (81%) have been satisfied with their new toilets.

➢ 8% of customers say they're very likely to replace a toilet in good working order over the next two years.

   • Those who intend to replace their toilets most often say it's because they will remodel (51%), but 24% say it's because they want to save water.

➢ 18%, however, say they would very likely spend $100 to replace a working toilet with a low low-flow model if they knew they could recoup the cost within 2 years through lower bills.

➢ 52% have some awareness of resource efficient washing machines.

Outdoor Water Use (applies only to customers with yards)

➤ 77% of all customers have yards, while 23% do not.

- Purveyor customers are significantly more likely to have yards (80%) than Seattle customers (74%), probably indicating a higher proportion of single family homes in Purveyor areas.

➤ Among the 77% of customers who have yards:

- 75% do their own maintenance.

- 66% improve their soil with compost or other organic amendments.

- 54% mulch their planting beds

- 29% use some type of low-volume watering method.

- 9% report they have no lawn areas, the same as in the 1994 survey (8%).

➤ Among the 70% of customers who have lawns:

- 46% have planted half or more of their yard area in lawn.

- 69% water their lawns during the summer but 30% do not water and 48% water once a week or less.

- 13% use pesticides to some degree, with Purveyor customers saying they used pesticides more than Seattle customers (18% to 8%).

- 34% use "weed and feed" type products, with Purveyor customers more often using these products than Seattle customers (40% to 26%).

- 29% aerate and over-seed their lawns, with Purveyor customers more likely to do this than Seattle customers (34% to 21%).

- 29% have removed part of their lawns in the past 5 years.

  - 70% of those removing lawn have replaced them with garden areas.

- 41% use organic fertilizers

- 43% use mulching mowers.

- 52% leave grass clippings on their lawns, with Seattle customers more likely to do this than Purveyor customers (55% to 50%).

- 46% think it's at least somewhat important to have a green lawn, with Purveyor customers more likely to find a green lawn important (52%) than Seattle customers (37%).

  - The importance of a green lawn has clearly diminished since the 1994 survey, when 61% said it was at least somewhat important.

- 72% respond favorably to the notion of a Natural Lawn, with Seattle customers more positive than Purveyor customers (77% to 69%).

➢ Of the 48% of all customers who water their lawns:

- 21% use automatic sprinkling systems. Of those using automatic systems:

  - 59% adjust them according to temperature

  - 74% inspect them for leaks at least once a year.

Summary of Changes in Attitudes and Behaviors Since 1994

One of the major purposes of this study was to track changes in water conservation attitudes and behaviors over time. The data show a number of gains for conservation: more customers feel they can affect water supplies, fewer customers find a green lawn important, and customers are watering less. These gains correspond to programmatic efforts, and occurred despite a notable decrease in customer concern about impending water supply problems. In addition, customer ratings of the importance of conservation have remained stable.

Some areas of change have been less positive, and these changes appear associated with less programmatic effort. The role of toilets in conservation activities seems less important in consumers' minds, both in terms of how much water they use and keeping them in good repair. Also, the amount of yard covered with lawn appears on the rise since 1994.

The table below first lists the positive changes, followed by the areas of stability, and, finally, the areas where slippage has occurred. The numbers are for single family homes only, since that was the population of the 1994 survey.

Table 1 - Water Conservation Areas of Change and Stability

Areas of Conservation Gains *(Single family households only; N of respondents varies)*	1994 Survey %		1999 Survey %
Can Individuals Make Supplies Last Longer?			
Greatly affect/Make supplies last a lot longer	28		42
How Important is a Green Lawn?			
Very important	22		16
Somewhat important	39		29
Not too important	27		28
Not at all important	12		26
How Often Do You Water Your Lawn?	**1991**	**1994**	**1999**
Never water	15	23	30
Twice a month or less	14	17	35
Once a week	26	35	35

Table 1, continued	1991	1994	1999
Every three days	45	37	21
Every other day	14	9	7
Every day	2	2	2
Areas of Stability	**1994**		**1999**
How Important is Conserving Water?			
Very important	53		50
Somewhat important	42		41
Areas of Conservation Slippage			
What Are Two Largest Indoor Water Uses?			
Flushing Toilets (Note: Small loss but worth nothing since clothes washing is up from 49% to 66% as one of the top 2.)	49		46
Toilets Checked for Leaks in Past Year?			
Yes	79		68
How Much of Yard is Lawn?			
No lawn	8		9
Up to ¼ of yard area	27		19
¼ to ½	32		25
½ to ¾	24		27
Over ¾ of yard area	8		20
Don't know	-		1

Customer Information Sources

➢ Customers clearly depend upon different information sources to gather different types of information, as shown in **Table 2 below**. Newspapers are the best cross-over source.

Table 2 - Where Customers Go to Get Information

Where customers go to get information on . . .	Lawn & Garden %	Appliances %	Water supply & Environment %
Local Nurseries	30	-	-
Books and magazines	21	14	-
Newspapers	14	11	40
Appliance stores	-	49	-
Government/utilities	-	-	24

- They obtain lawn and garden care information from local nurseries (30%), books and magazines (21%), and the newspaper (14%).

- They get appliance information from home improvement, hardware, or appliance stores (49%), books and magazines (14%), and newspapers (11%).

- They go to newspaper articles and columns (40%) and governments or utilities (24%) for information about water supply and environmental issues.

Profiles of Key Customer Segments

➢ Chapter 6 profiles key customer segments that will be useful in planning conservation efforts (e.g., a profile of those who would be likely to spent $100 to replace their toilets if the payback in bill savings is two years or less). The various segments are characterized by the demographics, household characteristics, attitudes, and behaviors that distinguish them. The reader is referred to Chapter 6 for more details.

Conclusions and recommendations

Four conclusions emerge from findings in this study:

1. Customer characteristics, attitudes, and behaviors across the region are more similar than different, and have become more similar over time.

While some demographic, attitudinal, and behavioral differences do exist between Seattle and Purveyor customers, these customer groups tend to be more similar than different along most dimensions. In addition, the congruence of these two populations has increased over time. The consistency in the population bodes well for the success of conservation programs that are delivered on a regional basis.

However, it is also important to remember that a considerable amount of variation exists within the population and that all conservation efforts do not suit all population segments equally well. For instance, customers in multi-family dwellings can probably do more to conserve indoors or in common outdoor areas, while single family home dwellers have opportunities both inside and outside.

2. Environmentalism is the single most important motivator for saving water.

As suggested by the specific key findings listed above, protecting the environment appears as the strongest component in customer motivations to save water. The environmental umbrella is also useful for discussing issues that cut across resources – for instance, salmon recovery and restoration. Although customers rated all four motivations (protecting the environment, saving money, having enough water for salmon, and delaying the development of more costly sources of supply) quite highly, and all can be used to motivate customers, protecting the environment was at the top of the list.

Since the notion of "the environment" also tends to become abstract, it will be important to find ways to connect environmental protection with specific steps customers can take and the consequences – either positive or negative – of taking those steps.

3. Changes in attitudes and behaviors have occurred and are linked to utility efforts.

The good news is that there seems to be a direct relationship between utility program emphasis and changes over time in awareness, attitudes, and behavior. However, this relationship cuts in both positive and negative directions. Clearly, all the emphasis on less lawn watering and deflating the necessity and image of having a green lawn has engendered water saving behaviors and attitudes.

On the other hand, we can see that the behaviors and attitudes that received less attention have eroded over time (e.g., checking for toilet leaks). It even appears that programs can have mixed results for customer understanding. A good deal of attention over the past few years has been paid to resource efficient washers through the WashWise program. No doubt this has increased customer awareness of these washers. However, it may also have "mislead" customers into assuming that the water used in washing clothes is usually greater than the water used in flushing toilets.

4. Good opportunities for more conservation exist.

The data strongly reveal that more progress in water conservation can be made. Not only do customers support further conservation, many also agree there is more to do and that they could realistically save more:

➢ 15% say they can save 10% or more water in their homes

➢ 29% say they can save somewhat more (5-10%).

➢ 32% say they can save a little more (1-5%)

Several important opportunities for knowledge, attitudinal, and behavioral changes still exist among residential customers, all of which can be effectively placed in the context of environmental protection. Major opportunities include:

➢ Increasing awareness of taking shorter showers

➢ Encouraging even more showerhead replacements

➢ Increasing awareness of resource efficient washers

➢ Increasing awareness of water savings through toilet use and through promoting the benefits of low-flow toilets. Awareness should be increased in these areas:

- toilets are the largest use of water indoors

- flushing less saves significant water

- installing low flow toilets is environmentally responsible, cost-effective, and customers are satisfied with these toilets
- checking for leaks is important

➢ Increasing awareness and use of natural lawn behaviors, including no watering

➢ Increasing lawn "downsizing"

➢ Increasing water saving and environmentally friendly lawn practices

➢ Further use of customer identified preferred methods of disseminating information – nurseries, newspapers, utilities, hardware and appliance stores

CHAPTER ONE – BACKGROUND, METHODS, AND DEMOGRAPHICS

Study Background and Purposes

Seattle Public Utilities (SPU) provides water to over 1.14 million people in the Seattle-King County area. A little under half (45%) of customers – mostly those living within the Seattle city limits – receive their water directly from SPU. The remaining 55% of customers receive water through twenty-seven wholesale purveyors.

Over the years, SPU and its purveyors have systematically conducted quantitative and qualitative market research to:

a) Assess consumer attitudes and behavior towards water conservation and to help design public information campaigns

b) Track <u>changes</u> in attitudes and behaviors to gauge the effectiveness of public information campaigns

c) Design and evaluate programs targeted to specific market segments

The goals of the current research are to:

➢ Identify, and evaluate changes in, perceptions, attitudes, and behaviors of residential customers toward water conservation

➢ Help guide effective programs to foster and achieve conservation among residential customers

Residential customers account for well over half of SPU's and Purveyor's total water consumption. Thus, with a new regional initiative to step up water conservation efforts in the coming years, understanding and serving this group of consumers is important for achieving conservation goals.

Study Methods

Approach

Seattle Public Utilities hired Dethman & Tangora LLC, a market research firm in Seattle, to conduct the research, and to oversee Market Data Research Corporation, a survey fielding firm in Tacoma, in collecting and processing the data. Telephone interviews with a randomly selected, representative sample of 603 residential customers from Seattle and 620 residential customers from Purveyor service areas were conducted during the first two weeks of October, 1999. Interviews lasted about 15 minutes and were conducted using a computer assisted interviewing system. Data were analyzed using standard data reduction and statistical methods.

The sample was drawn to provide adequate numbers for a separate analysis of Seattle and Purveyor customers, as well as to provide reliable overall population proportions. The following margins of error and confidence intervals apply:

➢ **Overall Population Sample = 1223**. This sample has been weighted to reflect the population proportions of Seattle (45%) and Purveyor (55%) populations. This sample size carries a + or – 2.9% margin of error with 95% confidence.

➢ **Seattle Sample = 603,** carries a + or – 4.1% margin of error with 95% confidence

➢ **Purveyor Sample = 620,** carries a + or – 4.1% margin of error with 95% confidence

Comparisons With Prior Survey Data

Given the changing household profile of the area and the desire to broaden the conservation ethic to all consumers, the current survey covered all residential households, both single family and multi-family. Thus, overall population figures represent all households in Seattle and Purveyor service areas.

This report also compares results, where similar questions were asked, to a SPU's *1994 Home Water Use Survey* and *1991 Summer Water Conservation Study,* both of which polled single family households only. To draw an accurate picture of changes between the 1991, 1994 and 1999 data, only the statistics of single family households are compared.

Table and Figure Notes

Throughout the main body of this report, three types of data may be presented for each question:

1. A pie chart that shows the overall weighted population proportions for 1999.

2. A table that compares 1999 Seattle and Purveyor households for that question. These samples represent each geographic area and are not weighted. If significant differences exist between Seattle and Purveyor customers, it is indicated by *Significance (Sig) = <.05*, meaning that the differences only had a 5% chance of occurring by chance. If no significant differences were present, the table is labeled Not Significant (N.S.).

3. A table that compares 1994 and 1999 survey results (only for single family households). In both cases, data have been weighted to reflect population proportions.

Demographic and Household Characteristics

Summary

Demographic and household characteristics of the population, Seattle and Purveyor households, and 1994 and 1999 single family households are shown in **Table 3**. These findings show that:

➢ Most customers (75% overall) own their homes, but that significantly more customers own their homes in Purveyor areas (80%) than in Seattle (68%). A similar pattern follows for single family versus multi-family dwellings.

➢ Lot sizes are significantly larger in Purveyor areas, where 41% of single family homes are on ¼ acre or more, compared to 12% in Seattle.

➢ Average household size is about 2.5 people, with no significant difference between Seattle and Purveyor customers and no difference between 1994 and 1999 single family homes.

➢ Most (58%) customers are 45 or older.

➢ Seattle has a slightly, but statistically significant, greater ethnic population (14%) than Purveyor areas (9%). Overall, population proportions by ethnicity are fairly consistent with U.S. Census Bureau statistics for King County.

➢ Purveyor households are more likely than Seattle households to have incomes above $75,000, while Seattle households are more likely to have incomes of $25,000 or below.

➢ Little has changed in the demographics of single family households since 1994.

Table 3 - Summary Table of Demographics *(Q51-57)*

Home Ownership vs. Renting *(Q53) Sig. = <.05*	Seattle %	Purveyor %	Population %*	1994 Single Family %	1999 Single Family %
Own	68	80	75	90	89
Rent	31	19	24	9	11
Don't Know/Refused	1	1	1	1	1
Type of Dwelling *(Q51) Sig. = <.05*	**Seattle %**	**Purveyor %**	**Population %***	**1994 Single Family %**	**1999 Single Family %**
Single dwelling	74	82	78	Not Applicable	
Multi-dwelling	26	17	21		
Don't Know/Refused	-	1	1		
Lot Size *(Q52) Sig. = <.05*	**Seattle %**	**Purveyor %**	**Population %***	**1994 Single Family %**	**1999 Single Family %**
Small (less than 5,000 sq. ft.)	36	16	24	19	24
Average (5,000 to 10,000 sq. ft.)	49	39	43	51	44
¼ acre to ½ acre	10	24	18	17	18
More than ½ acre	2	17	11	9	11
Don't Know/Refused	3	4	4	4	3
Number in Household *(Q54) N.S.*	**Seattle %**	**Purveyor %**	**Population %***	**1994 Single Family %**	**1999 Single Family %**
1	28	16	22	17	16
2	38	40	39	41	39
3	17	18	17	16	19
4	10	15	13	17	15
5 or more	6	11	8	9	9
Don't Know/Refused	-	-	-	-	1
Average	*2.3*	*2.7*	*2.52*		*2.69*
Age *(Q55) N.S.*	**Seattle %**	**Purveyor %**	**Population %***	**1994 Single Family %**	**1999 Single Family %**
18-24	5	4	5	1	3
25-34	14	12	13	11	11
35-44	20	23	22	24	24
45-54	19	19	19	22	21
55-64	11	15	13	15	15
65 or older	28	24	26	25	25
Don't Know/Refused	2	2	2	2	2

Ethnicity *(Q56)* *Sig. = <.05*	Seattle %	Purveyor %	Population %* **	1994 Single Family %	1999 Single Family %
Caucasian	82	84	83	84	84
Asian/Pacific Islander	7	3	5	7	5
African-American	3	2	2	1	2
Latino/Hispanic	2	2	2	1	2
Native American	1	1	1	-	1
Other	1	1	1	2	1
Don't Know/Refused	4	6	5	5	5
Household Income *(Q57)* *Sig. = <.05*	**Seattle %**	**Purveyor %**	**Population %***	**1994 Single Family %**	**1999 Single Family %**
Less than $15,000	8	3	5	7	4
$15,000 to $25,000	12	6	9	11	7
$25,000 to $50,000	23	21	22	28	21
$50,000 – $75,000	15	14	14	20	15
$75,000 - $100,000	8	11	9	11	10
Over $100,000	7	11	9	10	11
Don't Know/Refused	27	34	31	13	32
Gender *Sig. = < .05*	**Seattle %**	**Purveyor %**	**Population %***	**1994 Single Family %**	**1999 Single Family %**
Female	50	56	54	Not Applicable	
Male	50	44	46		
N =	*603*	*620*	*1223*	*2505*	*1223*

Notes:

*Population percentages are weighted to reflect population proportions

**1998 U.S. Census estimates for King County by ethnic group show Caucasian = 78%; Asian = 11%; African American = 6%; Hispanic (of any race) = 4%; American Indian = 1%; and Other = <1%.

CHAPTER TWO – BASIC VIEWS ABOUT WATER AND ENVIRONMENTAL ISSUES

Q1: How concerned are you that your community may face major water supply problems over the next five years?

Respondents were first asked how concerned they were about their communities facing major water supply problems over the next five years. As shown in **Figure 2**, over half (62%) of all respondents are either very (24%) or somewhat (38%) concerned. However, 36% say they are not too (23%) or not at all concerned (13%). The level of concern is the same among Seattle and Purveyor customers. However, those saying they are very or somewhat concerned dropped substantially among single family homeowners since1994 – from 84% to 63% (see **Table 4**).

Figure 2 - Level of Concern About Water Supply Problems (*Q1*)

How concerned are you that your commmunity will face major water supply problems in the next 5 years?   (N=1223)

- Not at all concerned 13%
- DK 2%
- Very concerned 24%
- Not too concerned 23%
- Somewhat concerned 38%
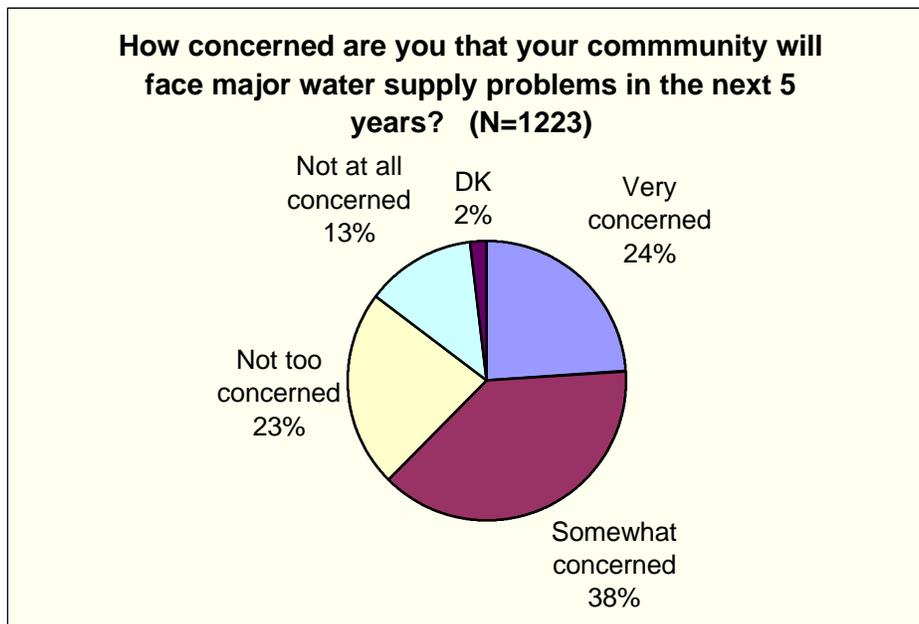
Regional Comparison N.S.	Seattle %	Purveyor %
Very concerned	22	25
Somewhat concerned	42	36
Not too concerned	21	25
Not at all concerned	13	12
DK	2	2
N=	*603*	*620*

Table 4 - Level of Concern About Water Supply Problems *(Q1)*

Over Time Comparison: Concern About Supply*	1994 %	1999 %
Very concerned	42	25
Somewhat concerned	42	38
Not too concerned	13	23
Not at all concerned	3	13
DK		2
Reminder: Single Family Households Only N =	*2505*	*959*

Q2: Why do you give that rating?

Customers who were concerned about future water supplies (62% of the population) most often said it was due to "population growth," and other development concerns (16%), as shown in **Table 5**. Other reasons for concern included finite water supplies and shortages (13%), the need for good water (13%), and water quality and health concerns (10%). Respondents who were not concerned (36% of the population) most often said they believe there's enough water (38%) or they don't believe a problem exists (33%).   Seattle and Purveyor customers gave similar reasons, and customer reasons have not changed much between 1994 and 1999.

Table 5 - Reasons for Concern or Lack of Concern About Water Supply *(Q2)*

Reason	Concerned or Not Concerned %
Population growth/over-development	16
Finite water supply/shortages	13
Good water is important/necessary	13
Health/general water quality	10
People don't care/conserve enough	6
Water management problems	6
Environmental/global issues	3
Increased media coverage	3
Rising water rates	3
There's enough water	38
Don't believe there is a problem	33
Never thought of, not informed	9
Trust the utilities/water system	2
Don't know	3
N=	*1198*

Q3: Do you believe the actions of individual households like yours can greatly affect whether we have enough water to meet the future demands of our region, somewhat affect whether we have enough water, or have little effect on whether we have enough water?

Respondents were asked how much individual households could affect whether we have enough water. **Figure 3** shows that almost all customers (87%) think individuals can either greatly (42%) or somewhat (45%) affect how much water we have. Only 10% said their actions could have little effect. No differences surfaced between Seattle and Purveyor customers.

However, customer viewpoints seem dramatically different since 1994, as shown in **Table 6.** Although the questions differ somewhat, only 28% in 1994 felt conservation could make supplies "last a lot longer" compared to 42% in 1999 saying their actions can "greatly affect water supplies."

Figure 3 - How Much Individual Actions Can Affect Having Enough Water *(Q3)*
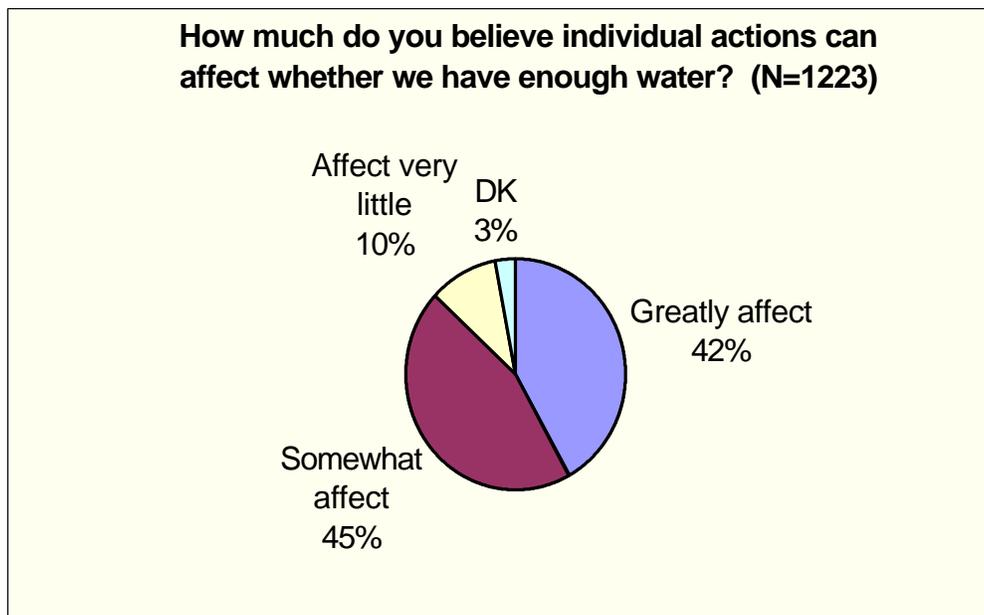
Regional Comparison N.S.	Seattle %	Purveyor %
Greatly affect	45	40
Somewhat affect	42	47
Affect very Little	10	10
DK	2	3
N =	*603*	*620*

Table 6 - How Conserving Can Affect The Water Supply *(Q3)*

Over Time Comparison	1994 Survey % (Extend water supply)	1999 Survey % (Affect water supply)
Greatly affect/Make supplies last a lot longer	28	42
Somewhat affect/Last somewhat longer	64	46
Affect very little/Not help	8	10
DK	-	*2*
N=	*2465*	*959*

Q4: How important is it for your household to actively conserve water?

As shown in **Figure 4** below, nearly half (49%) of all respondents thought it was very important to conserve water and another 42% thought it was somewhat important, indicating the high value customers place on conservation. Only 8% thought conservation was not too (6%) or not at all (2%) important. Seattle and Purveyor customers did not differ. And, as shown in **Table 7**, attitudes about the importance of conserving have not changed since 1994: about half still think it's very important, with less than 7% saying it's not important, and the rest saying it's somewhat important.

Figure 4 - Importance of Conserving Water *(Q4)*

How important is it for you to actively conserve water? (N=1223)

- Very important 49%
- Somewhat important 42%
- Not too important 6%
- Not at all important 2%
- DK 1%
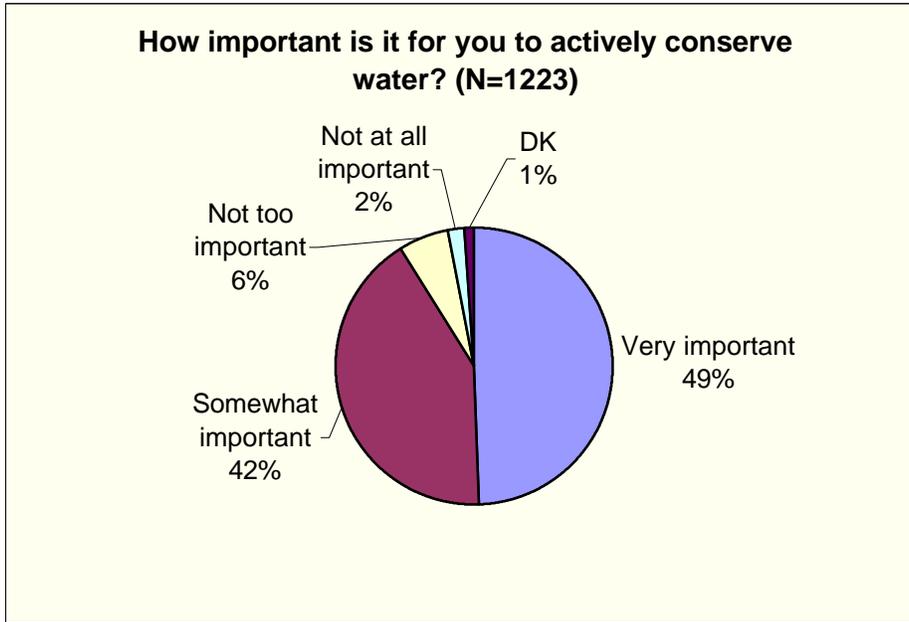
Regional Comparison N.S.	Seattle	Purveyor
Very important	51	49
Somewhat important	41	43
Not too important	6	5
Not at all important	1	2
DK	1	0
N=	*603*	*620*

Table 7 - Importance of Conserving *(Q4)*

Over Time Comparison	1994 Survey %	1999 Survey %
Very important	53	50
Somewhat important	41	42
Not too important	6	6
Not at all/DK	-	*3*
N=	*2485*	*959*

Q5: How much more could you realistically do to save water in your home?

When asked how much more they could realistically do to save water in their home, both outdoors and indoors (see **Figure 5),** 15% said a great deal more (10% or more), and another 29% said somewhat more (5 to 10% more). About a third (32%) thought they could do a little more (1 to 5% more) and one in five (21%) said they could not save any more than they do now. Seattle customers are slightly more likely to feel they could save more than Purveyor customers.

Figure 5 - Doing More to Save Water in the Home *(Q5)*

How much more could you realistically do to save water in your home? (N = 1223)

DK
3%

A great deal more
15%

Not any more
21%

Somewhat more
29%
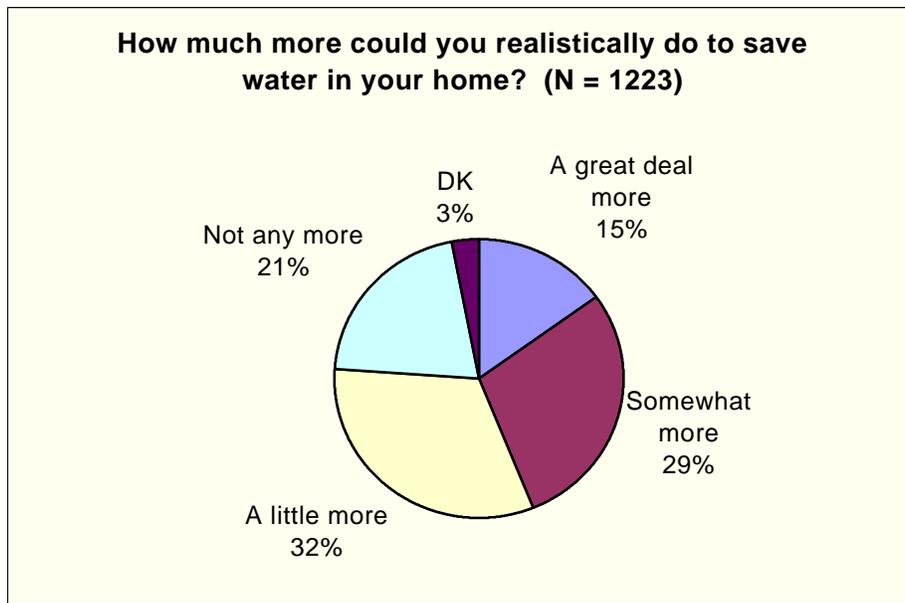
A little more
32%

Regional Comparison Sig. = <.05	Seattle %	Purveyor %
A great deal more	15	14
Somewhat more	30	28
A little more	30	34
Not any more	21	22
DK	4	1
N=	*603*	*620*

Q6: If you knew that the same rivers that salmon depend on for survival also supply your water, and that if all households saved water we would have enough water for salmon and people, how likely would you be to take steps to save water at home?

Q7. If you knew you could save 5-10% on your water and sewer bills by cost-effectively saving water, how likely would you be to take steps to save water at home?

Q8. Our region may be able to delay the development of new and more costly water supplies if every household reduced the amount of water it uses by 1% each year for 10 years. Knowing this, how likely would you be to take steps to save water at home?

Q9. If you knew that it would help protect the environment for now and future generations, how likely would you be to take steps to save water at home?

Respondents were asked the four questions above to gauge what would be most likely to motivate them to take steps to save water at home. As shown in **Figure 6,** all four reasons resonated very strongly with over half of respondents. Still, protecting the environment was the most compelling motivation (66% very likely to take steps to save water at home).

Between Seattle and Purveyor customers, the only significant difference in motivations was saving water to protect salmon runs, with Seattle customers finding this reason a little more motivating than Purveyor customers.

Figure 6 - Reasons to Take Steps to Save Water *(Q6-9)*

How likely would you be to take steps to save water if you could...   (N = 1223)
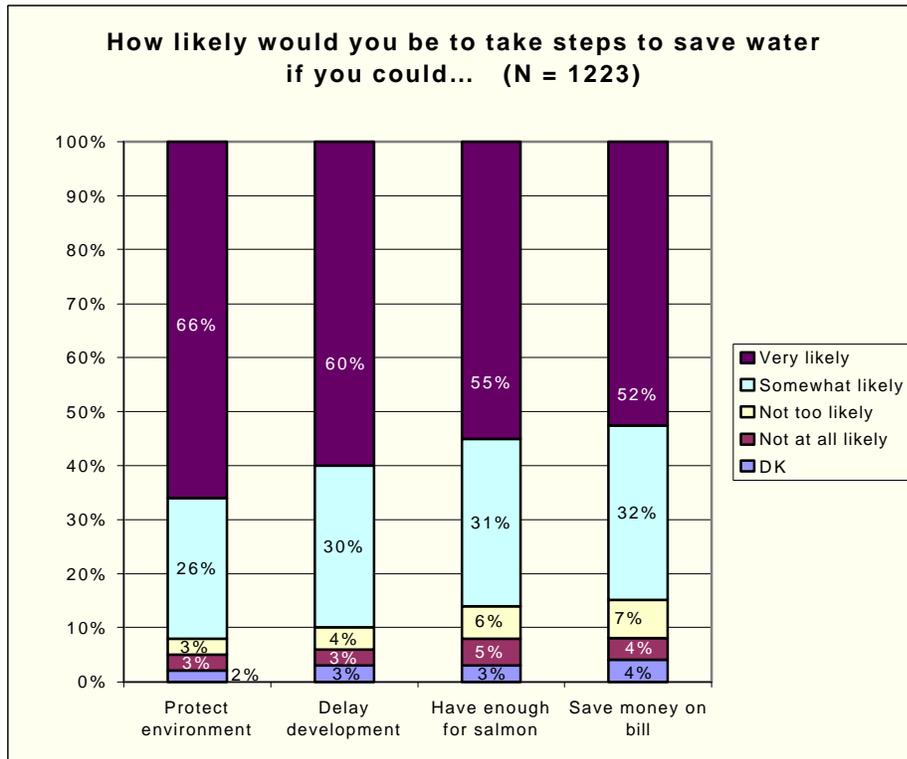
Regional Comparison – For Salmon Sig. = <.05	Seattle %	Purveyor %
Very likely	58	52
Somewhat likely	31	32
Not too likely	4	7
Not at all likely	4	5
DK	3	3
Regional Comparison – Save Money *N.S.*	**Seattle**	**Purveyor**
Very likely	51	53
Somewhat likely	32	32
Not too likely	7	7
Not at all likely	3	4
DK	6	3

Regional Comparison – Delay Development *N.S.*	Seattle	Purveyor
Very likely	62	59
Somewhat likely	28	32
Not too likely	4	4
Not at all likely	3	4
DK	3	2
Regional Comparison – Protect Environment. *N.S.*	**Seattle**	**Purveyor**
Very likely	68	65
Somewhat likely	23	28
Not too likely	3	3
Not at all likely	2	3
DK	3	1
N=	*603*	*620*

Q10. Which is the single most important reason you would take steps to save water? 1) Saving water for salmon. 2) Saving water to save money on your bill. 3) Saving water to delay new, more costly water supplies. OR 4) Saving water to help protect the environment?

Respondents were then asked to select the *single most important reason* for taking steps to save water at home. As shown in **Figure 7**, a strong majority of respondents (61%) selected protecting the environment as the most important reason to save water. Substantially fewer respondents selected the other three reasons. Saving money did become more prominent, moving from last place in the overall ratings to second place (15%), while delaying the cost of new development dropped from second into last place (10%), just behind saving salmon (11%).   No significant differences exist between Seattle and Purveyor customers.

Figure 7 - Single Most Important Reason to Save Water (Q10)

Which one is the single most important reason for taking steps to save water? (N=1223)

- None are important 1%
- DK 2%
- Have enough for salmon 11%
- Save money on bills 15%
- Delay development 10%
- Protect environment 61%
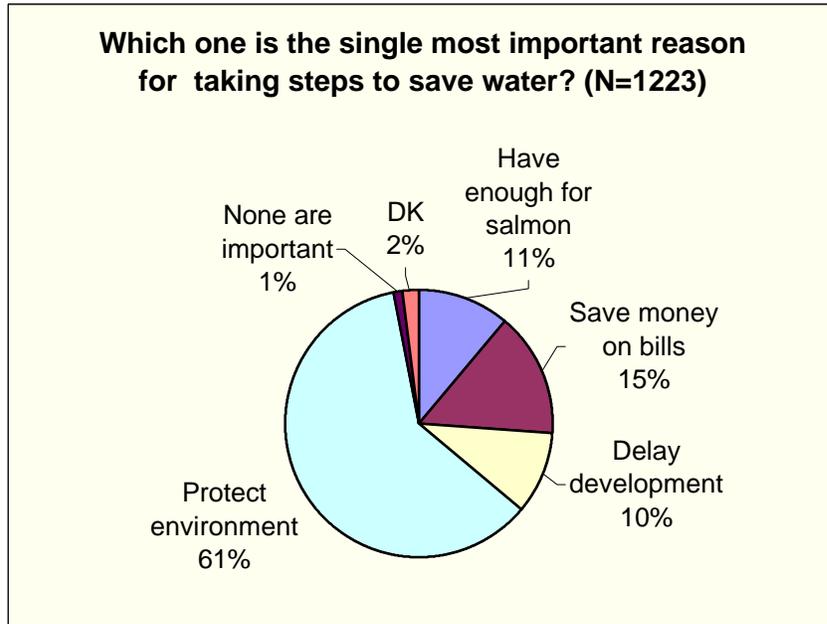
Comparison-single most N.S.	Seattle %	Purveyor %
Enough for Salmon	12	10
Save Money	13	16
Delay development	10	9
Protect Environment	62	61
None	1	1
DK	2	2
N=	*603*	*620*

CHAPTER THREE – INDOOR WATER USE

Largest Uses

Q11. Inside their homes, people mostly use water to wash their clothes, take baths and showers, and flush toilets. Of these three ways to use water, which two do you think are the largest uses in your home?

Respondents were asked to choose which of three uses – washing clothes, taking baths and showers, or flushing toilets – were the two largest uses of water in their homes. As shown in **Figure 8**, customers are most likely to believe "taking baths or showers" (75%) and "washing clothes" (63%) are the two largest uses of water indoors.

Based upon SPU's metering in single family homes, toilets use the greatest amount of water, while showers and baths (combined) and clothes washing use a nearly equal amount. (Note: Since multi-family homes often don't have clothes washers, and this study included multi-family homes, clothes washing would likely be a more clear "third place" if all household types were metered.) Thus, there is significant opportunity to improve customer knowledge about what indoor uses are the largest. Seattle customers were significantly more likely than Purveyor customers to select "flushing toilets" as one of the top two uses, but still selected baths and showers and clothes washing more often.

Table 8 shows that while the proportions choosing "baths and showers" and "flushing toilets" remained about the same between 1994 and 1999, those choosing "washing" clothes appeared to go up sharply. Although the two questions were phrased somewhat differently, another reason for the rise could be a recent regional emphasis on promoting resource efficient washers and little emphasis upon toilets as a high consumer of water.

Figure 8 - Two Largest Uses of Water Indoors (Q11)

Which two are the largest uses of water indoors? (N = 1223)
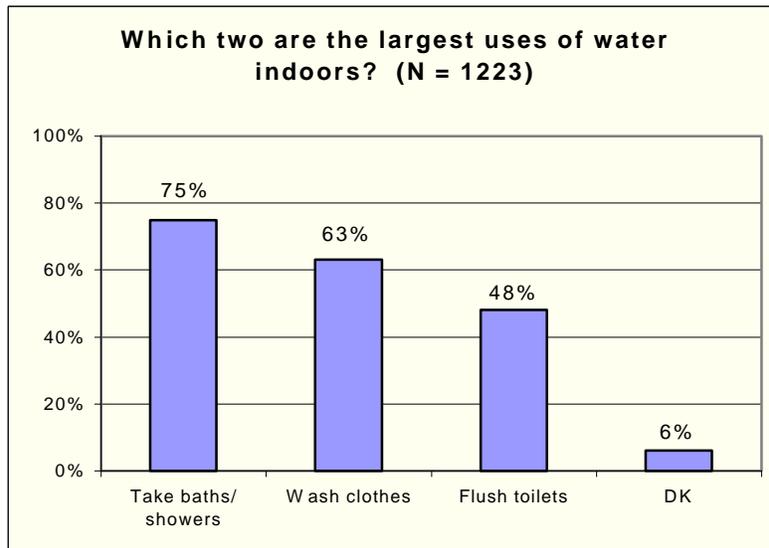
Regional Comparison-largest use *Sig. = <.05*	Seattle %	Purveyor %
Take baths/showers	75	75
Wash clothes	59	66
Flush toilets	52	45
DK	4	7
N=	*603*	*620*

Table 8 - Two Largest Uses of Water Indoors *(Q11)*

Comparison	1994 Survey %	1999 Survey %
Taking baths and showers	76	73
Washing clothes	49	66
Flushing toilets	48	46
Other	3	NA
Don't know	3	6
N=	*2452*	*959*

Showerheads and Showers

Q12: In 1992, your household should have received a low-flow showerhead from your water utility. Was this showerhead installed in your home?

Q13: Is it still there, did you put your old showerhead back in, or did you replace it with a new showerhead at a later date?

Q14: Have you installed a new showerhead in your home since 1993?

When asked if they had installed the low-flow showerhead they received from their utility in 1992, just over half (51%) of all respondents said yes, while 25% said no and 24% didn't know. Using the data in **Figure 9**, we can conclude:

➢ 67% of households are using low-flow showerheads: 41% are still using the original low-flow showerhead provided by their utility (41%), and 26% have installed a new low-flow showerhead since 1992 (when regulations went into effect requiring them).

➢ 33% of households don't have (27%) or don't know if they have (6%) low-flow showerheads.

Figure 9 - Use of Low-flow Showerheads in Home *(Q12-14)*

Was the low-flow showerhead you received in 1992 installed in your home?   (N = 1223)

DK 24%
Yes 51%
No 25%

Bought a new one since 1993? (N=600)

DK 6%
Yes 39%
No 55%

Is it still there? (N=623)

DK 3%
Put old back in 2%
Put in new 14%
Still there 81%
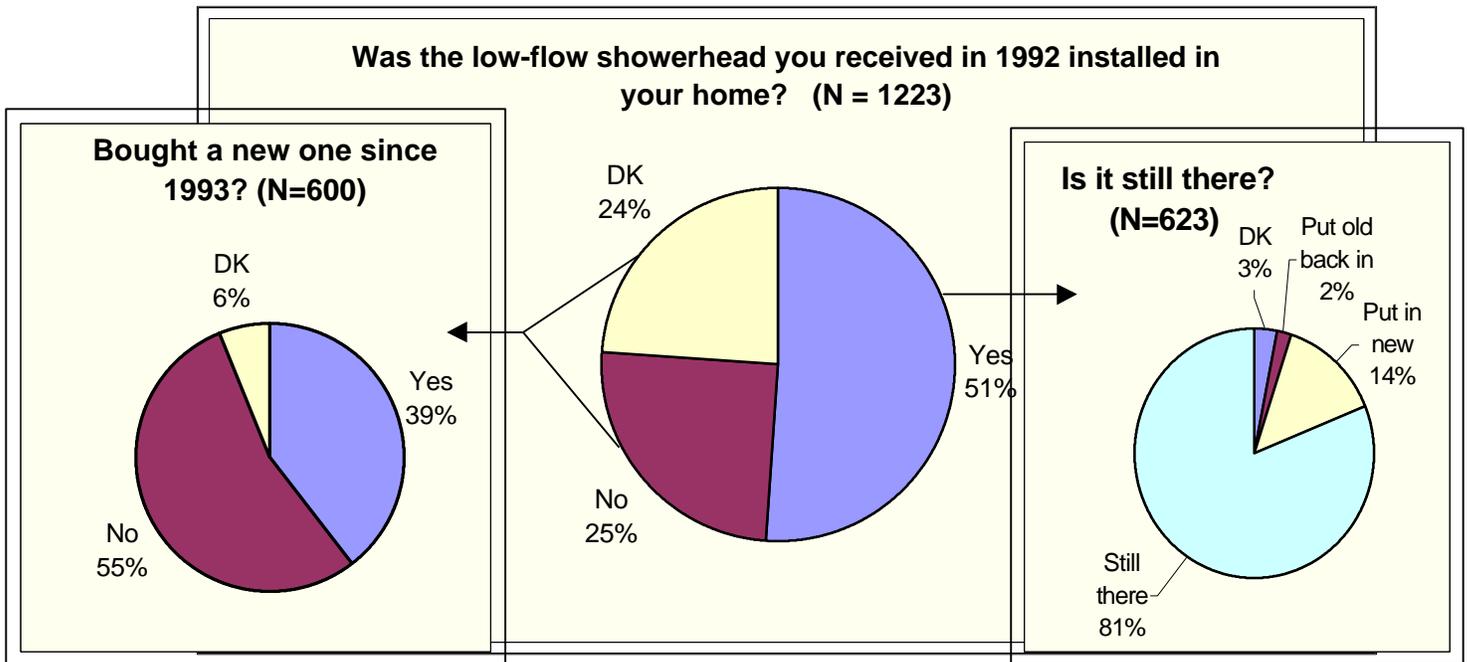
Some differences do exist between Seattle and Purveyor customers. Of most note is that more Purveyor than Seattle customers have bought and installed new showerheads on their own since 1993 – 44% compared to 34%. The 67% overall figure of all households having low-flow showerheads is consistent with the 70% figure of single family households in 1994 that reported they installed the utility-provided low-flow showerheads.

Regional Comparison-Showerhead Installed? *Sig. = <.05*	Seattle %	Purveyor %
Yes	50	52
No	22	27
DK	28	21
N=	*603*	*620*

Regional Comparison- Still There? *N.S.*	Seattle %	Purveyor %
Yes, still there	82	81
Put in new one	15	13
Put old one back in	1	2
DK	3	4
N=	*301*	*321*

Regional Comparison- Installed New One Since 1993? *Sig. = <.05*	Seattle %	Purveyor %
Yes	34	44
No	58	51
DK	8	5
N=	*302*	*299*

Q15: Do most showers in your household last 5 minutes or less, or do they last more than five minutes?

All respondents were asked how long most showers in their household lasted -- either 5 minutes or less or more than 5 minutes. As shown in **Figure 10** below, just over half of respondents (52%) said their showers lasted 5 minutes or less, while 44% said they lasted more than 5 minutes, and 4% said they don't know. Although the differences between Seattle and Purveyor customers are small, the statistics show that Seattle customers are significantly more likely to take shorter showers.

Figure 10 - Length of Most Showers *(Q15)*

How long do most showers in your household last?

DK
4%

More than 5
minutes
44%

5 minutes or
less
52%
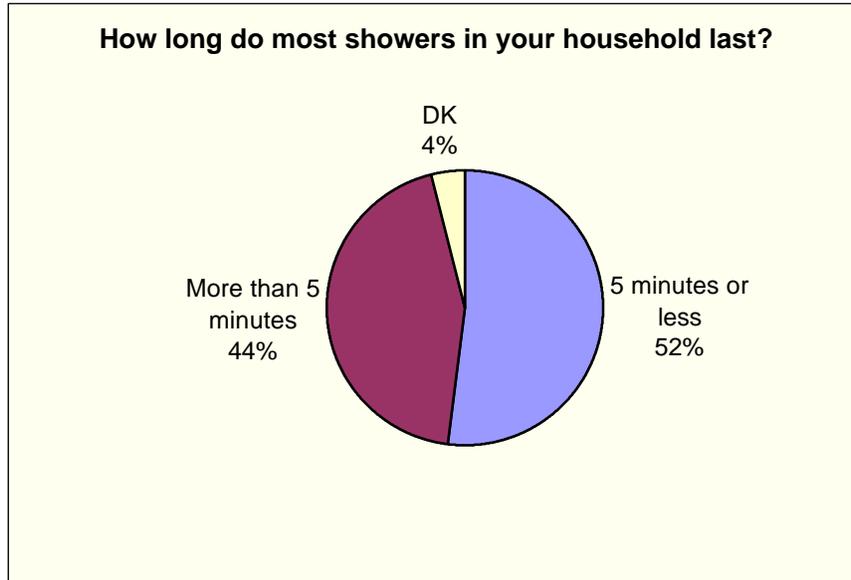
Regional Comparison- Length of most showers *Sig. = <..05*	Seattle %	Purveyor %
5 min or less	54	51
More than 5 min.	40	47
DK	6	3
N=	*603*	*620*

Toilets

Q16. Do you usually flush the toilet with every use, or do you often allow two or more uses before flushing?

Q17. How many toilets do you have in your home?

Q18. In the past year, have you checked any of your toilets for leaks?

Respondents were asked a series of questions about their household toilets. When asked if they either usually flush the toilet with every use or allow multiple uses before flushing, the majority of respondents (60%) said they flush with every use (see **Figure 11**). Still, 39% do allow two or more uses before flushing. Seattle customers are much more likely than Purveyor customers to allow two or more uses before they flush (46% vs. 32%)

Figure 11 - How Often Toilet Is Flushed *(Q16)*

How often do you usually flush the toilet? (N=1223)
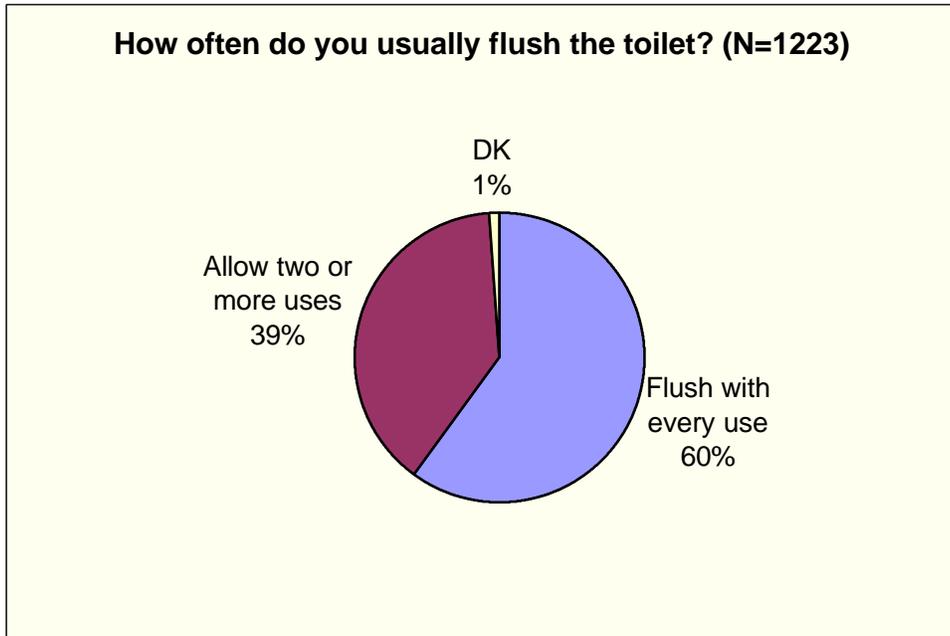
Regional Comparison- How Often Flush? *Sig. = <.05*	Seattle %	Purveyor %
Every use	52	67
2 or more uses	46	32
DK	2	1
N=	*603*	*620*

As shown in **Figure 12**, just over one third (35%) of all respondents have only one toilet in their home. Another 37% have 2 toilets, 25% have 3 toilets, and 3% have 4 or more toilets. Significant differences appear between Seattle and Purveyor samples. Many more Seattle homes than Purveyor homes have only one toilet (46% vs. 26%). And, many more Purveyor than Seattle homes have three toilets (33% vs. 16%). 37% of respondents in both groups have two toilets.

Figure 12 - Number of Toilets in the Home *(Q17)*

How many toilets do you have in your home?
(N = 1223)
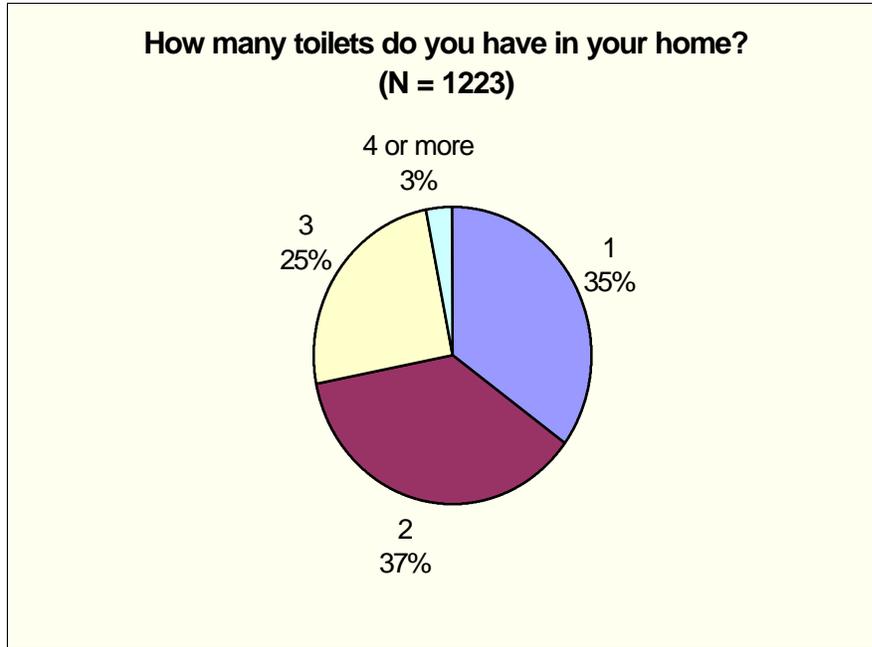
Regional Comparison- How Many Toilets *Sig. = <.05*	Seattle %	Purveyor %
1 toilet	46	26
2 toilets	37	37
3 toilets	16	33
4 toilets	2	4
N=	*603*	*620*

A majority of respondents (64%) report they have checked their toilets for leaks in the past year, as shown in **Figure 13**, but about one third (34%) said they had not and 2% didn't know. Significantly more Purveyor than Seattle customers report they have checked their toilets for leaks (71% to 57%). The proportion of households checking for leaks in the last year has declined from 79% in 1994 to 68% in 1999.

Figure 13 - Toilets Checked For Leaks *(Q18)*

In the past year, have you checked any of your toilets for leaks? (N = 1223)

DK
2%

No
34%

Yes
64%
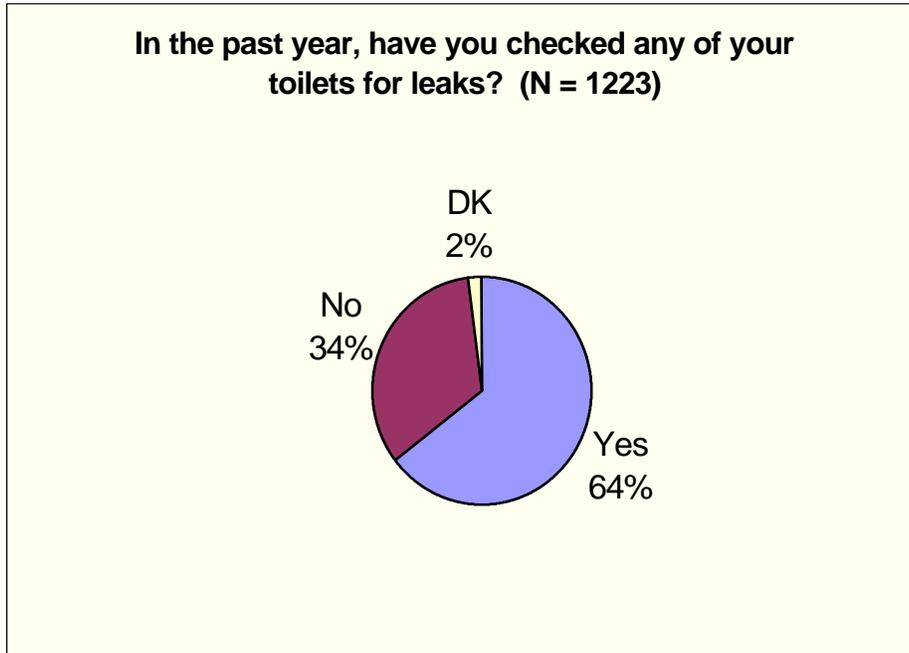
Regional Comparison- Toilets Checked for Leaks *Sig. = <.05*	Seattle %	Purveyor %
Yes	57	71
No	40	28
DK	2	1
N=	*603*	*620*

Table 9 - Checked toilet for leaks? *(Q18)*

Over Time Comparison – Toilets Checked for Leaks?	1994 Survey %	1999 Survey %
Yes	79	68
No	21	30
Don't know	-	1
N=	*2505*	*959*

Q19. How many toilets have you replaced or installed new in the past 7 years – that is, since 1993?

Q20. How satisfied are you with the new toilet?

Q21. Within the next two years, how likely will you be to replace any toilet in your home that is in good working order?.

Q22. Will you replace this toilet because you plan to remodel, because you'd like to save water, because you'd like to save money on your water and sewer bill, or for some other reason?

Respondents were asked how many toilets they had replaced or installed new in the past 7 years (since 1993, when the regulations were changed). As shown in **Figure 14,** 29% said they had replaced between 1 and 4 of their toilets in the past seven years, whereas 69% had not replaced any, and 2% didn't know.

Figure 14 - Number of Toilets Replaced Since 1993 *(Q19)*

How many toilets have you replaced since 1993?
(N = 1203)

4 or more 1%
DK 2%
3 2%
2 6%
1 20%
None 69%
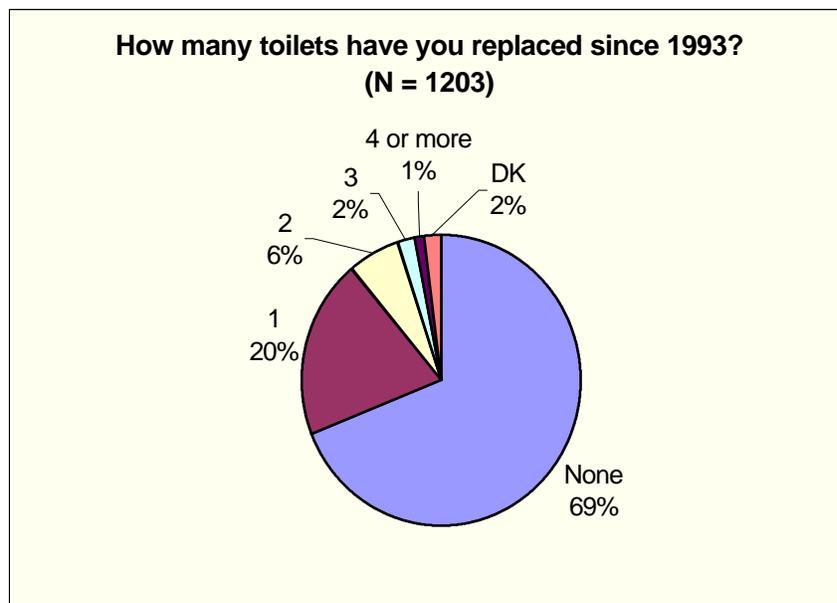
Regional Comparison – Toilets Replaced Since 1993 *N.S.*	Seattle %	Purveyor %
None	68	70
1	21	19
2	7	6
3	2	2
4	1	1
N=	*588*	*614*

Those respondents who had replaced any toilets since 1993 (N=374) were then asked how satisfied they were with the new toilet. As shown in **Figure 15**, most customers (81%) were either very (58%) or somewhat (23%) satisfied with the new toilet. The remaining 19% were either not very (9%) or not at all (10%) satisfied.

Figure 15 - How Satisfied With New Toilet *(Q20)*
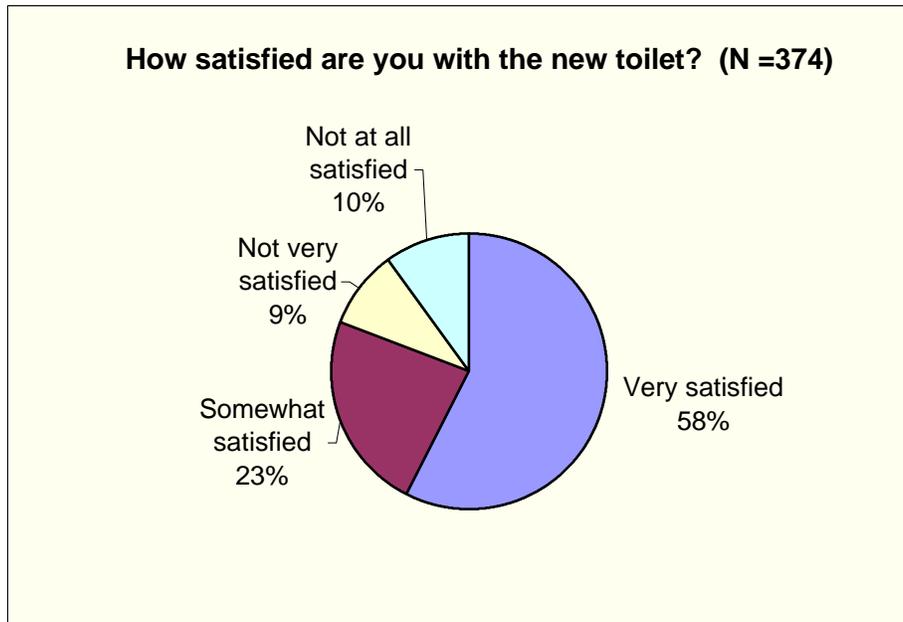
Regional Comparison—How Satisfied with New Toilet *N.S.*	Seattle %	Purveyor %
Very	57	57
Somewhat	26	20
Not very	5	12
Not at all	11	10
DK	0	1
N=	*189*	*186*

Respondents were asked how likely they would be to replace any toilet in their home within the next two years that was in good working order. As shown in **Figure 16**, most respondents (81%) said they were not likely to replace a working toilet. However, 8% said they were very likely and 8% said they were somewhat likely to replace a toilet in good working order within two years. (Note: these would be "voluntary" replacements, not replacements of malfunctioning toilets.)

Figure 16 - Likelihood of Replacing Good Working Order Toilet *(Q21)*

Within the next 2 years, how likely will you be to replace any toilet that is in good working order? (N=1203)

DK
3%

Very likely
8%

Somewhat likely
8%
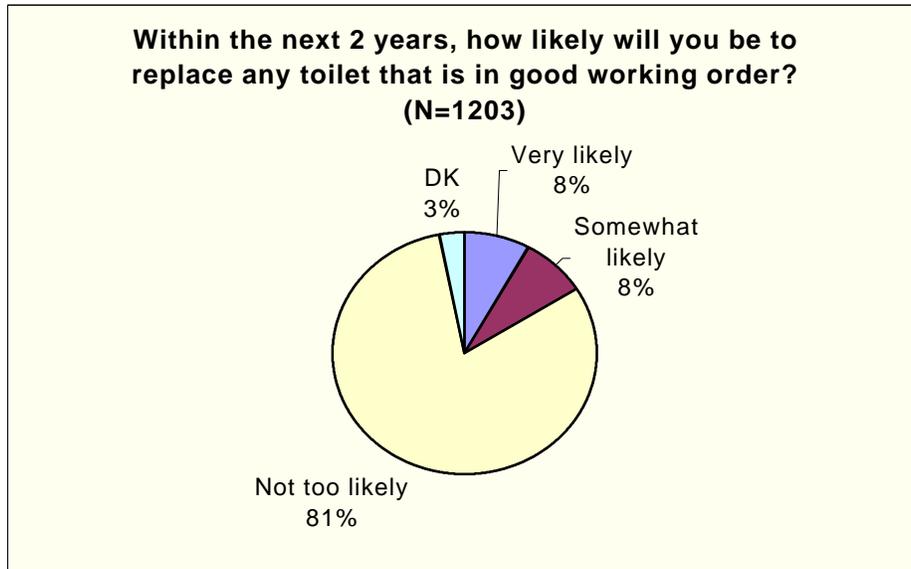
Not too likely
81%

Regional Comparison- How Likely to Replace Toilet In Next 2 Years *N.S.*	Seattle %	Purveyor %
Very	7	8
Somewhat	8	7
Not too	80	82
DK	5	2
N=	*189*	*186*

Respondents who were likely to replace a toilet in the next two years (16% of the population) were then asked if they planned to change their toilet because they wanted to remodel, wanted to save water, wanted to save money on their bill, or for some other reason? As shown in **Table 10**, just over half (51%) of this group said they planned to remodel. Nearly a quarter (24%) said it was to save on water use, and 12% said it was to save money on their water bill.

Table 10 - Reasons to Replace Toilet in the Next Two Years *(Q22)*

Reason	Population %
Remodeling/Updating	51
To save on water use	24
To save money	12
Broken/Leaks/Needs replacing	4
Other*	4
Don't know	4
(asked of respondents in Q21 who are very or somewhat likely to replace their toilet) N=	*183*
* Other reasons include "doesn't like low-flow model," "to save both money and water," and "buying new home."	

Q23. How likely would you be to spend about $100 to replace a working toilet in your home with a new low-flow, 1.6 gallon per flush model, if you could recover your cost through lower water and sewer bills in less than 2 years?

When all respondents were asked if they would spend $100 to replace a working toilet with a new low-flow model if they could recover the cost in less than 2 years, 39% said they would be very (18%) or somewhat (21%) likely to replace a toilet (see **Figure 17**). This proposition more than doubled the number of households interested in changing to a new (low-flow) toilet.

Seattle respondents were more likely than Purveyor respondents to want to replace their toilets with a low-flow model for $100.00 and a 2-year payback: 45% of Seattle respondents versus 35% of Purveyor respondents.

Figure 17 - How Likely to Replace Toilet With Low-Flow Model *(Q23)*

Would you spend $100 to replace your toilet with a low-flow model if payback is 2 years? (N = 1223)

DK 5%
Very likely 18%
Not at all likely 38%
Somewhat likely 21%
Not too likely 18%
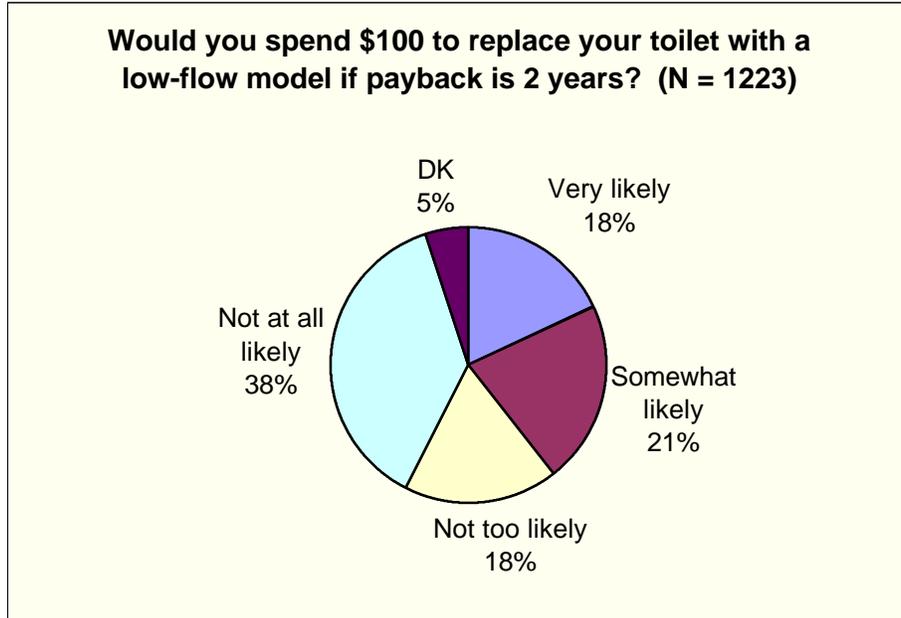
Comparison – How Likely to Replace Toilet With Low-Flow Model *Sig. = <.05*	Seattle %	Purveyor %
Very	22	15
Somewhat	23	20
Not too*	49	60
DK	6	4
* "not too" and "not at all" combined	*603*	*620*

Washing Machines

Q24: Have you ever heard of tumble action or horizontal-axis washing machines that are designed to save water and energy?

The final question to respondents on indoor water used revealed that a little over half (53%) of all respondents said they had heard of resource efficient horizontal-axis washing machines that are usually loaded from the front instead of from the top. As shown in **Figure 18** below, 45% said they had not heard of these water- and energy-

saving washing machines and 2% didn't know. No differences surfaced between Seattle and Purveyor customers.

Figure 18 - Knowledge of Water- and Energy-Saving Washing Machines *(Q24)*

Have you heard of the washing machines designed to save water and energy? (N = 1223)

DK
2%

No
45%

Yes
53%
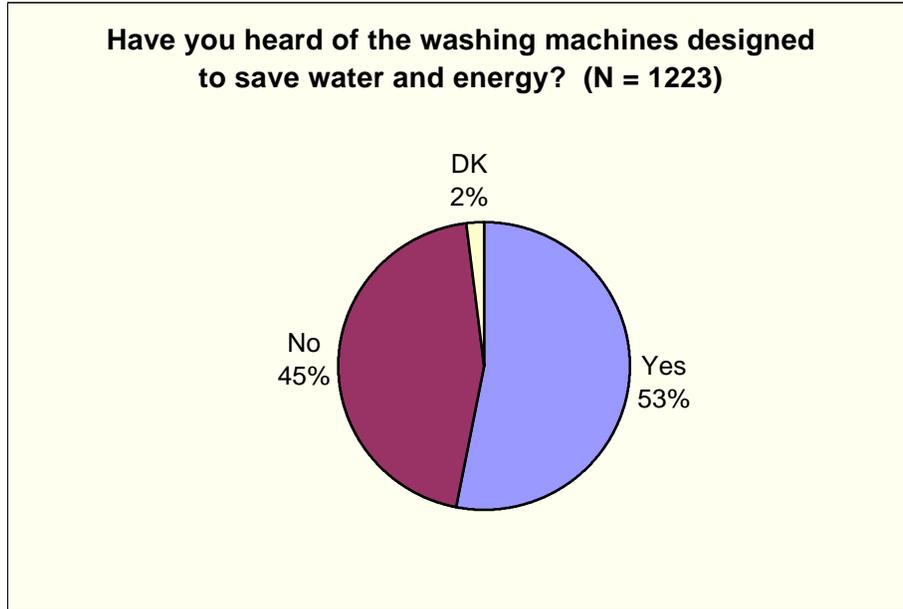
Comparison – Heard of Horizontal Axis Washer? *N.S.*	Seattle %	Purveyor %
Yes	55	52
No	43	47
DK	2	1
* "not too" and "not at all" combined	*603*	*620*

CHAPTER FOUR – OUTDOOR WATER USE

Incidence of Yards and Lawns

Q25: Do you have a yard?

To help filter respondents through the outdoor water section of the interview, respondents were first asked if they had a yard. As shown in **Figure 19** below, over two-thirds (77%) do have yards, while 23% do not. Data comparisons show that significantly more Purveyor respondents have yards than Seattle respondents (80% vs. 74%).

Figure 19 - Respondents Who Have A Yard *(Q25)*

Do you have a yard? (N = 1223)

No
23%

Yes
77%

Regional Comparison – Have yard? *Sig. = <.05*	Seattle %	Purveyor %
Yes	74	80
No	26	20
N=	*603*	*620*

Q26: Of the yard around your home that's planted with lawn and garden, how much of it is lawn?

To further filter respondents through this outdoor section, respondents with yards (77% of the total population) were then asked if any part of their yard was planted with lawn. As shown in **Figure 20,** 9% report their yards have no lawn. The remaining yards are fairly evenly divided between those where up to ¼ of their yard area is lawn (20%), ¼ to ½ of their yard area is lawn (24%), ½ to ¾ of the yard area is lawn (26%), and over ¾ of the yard area is lawn (20%). No significant differences emerged between Seattle and Purveyor customers. However, given that Purveyor yards tend to be larger than Seattle yards, the amount of lawn per customer is likely larger in Purveyor areas.

Figure 20 - Amount of Lawn Area in Yard *(Q26)*

How much of your yard is lawn area? (N = 945)

- DK 1%
- No lawn 9%
- Up to 1/4 is lawn 20%
- Between 1/4 and 1/2 24%
- Between 1/2 and 3/4 26%
- Over 3/4 is lawn 20%
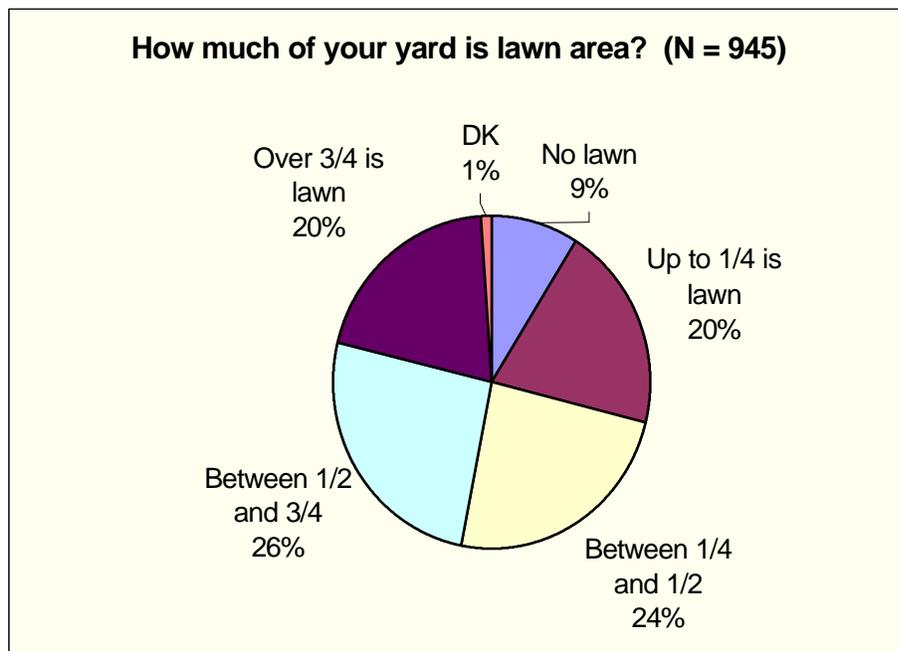
Regional Comparison – Amount of lawn *N.S.*	Seattle %	Purveyor %
None	8	10
Up to ¼	21	19
¼ to ½	26	23
½ to ¾	28	24
Over ¾	16	23
N=	445	497

Although the proportion of yards with no lawns has remained stable, it appears lawn coverage has risen since 1994. In 1994, 32% of respondents reported they had lawn planted on ½ or more of their yards; in 1999, 47% report that ½ or more of their yards are planted in lawn.

Table 11 - Amount of Lawn in the Yard *(Q26)*

Over Time Comparison – Amount of Lawn	1994 Survey %	1999 Survey %
No lawn	8	9
Up to ¼ of yard area	27	19
¼ to ½	32	25
½ to ¾	24	27
Over ¾ of yard area	8	20
Don't know	-	1
N=	2421	900

Lawn Care Preferences and Practices

Q27: How important is it for you to have a green lawn as part of your landscaping?

Q28: How willing would you be to have a natural lawn if a natural lawn is a lighter green color, has a few weeds, and is mowed a little higher than you're used to?

The 860 respondents (70% of the total population) who had at least part of their yard as lawn were asked how important it was to have a green lawn. As shown in **Figure 21** below, nearly half (46%) said it was either very (16%) or somewhat (30%) important, while the other half (52%) said it was either not too (28%) or not at all (26%) important to have a green lawn.

Purveyor customers place a higher value on having a green lawn, with 52% saying it was important, compared to 37% of the Seattle population. Notably, the importance of a green lawn has decreased appreciably since 1994, from 61% saying it was important in 1994 to 45% in1999.   (See **Table 12**)

Figure 21 - Importance of Having a Green Lawn *(Q27)*

How important is it for you to have a green lawn?
(N = 860)

Not at all important 26%

Very important 16%

Somewhat important 30%

Not too important 28%
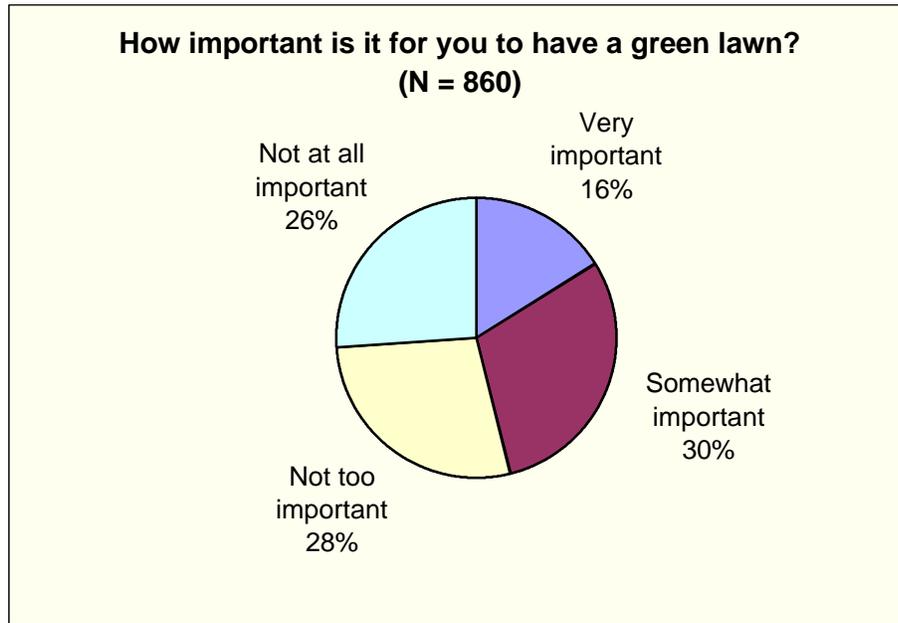
Regional Comparison – Importance of a Green Lawn *Sig. = <.05*	Seattle %	Purveyor %
Very important	11	19
Somewhat important	26	33
Not too important	30	26
Not at all important	32	22
N=	*410*	*448*

Table 12 - Importance of Green Lawn *(Q27)*

Over Time Comparison— Importance of a Green Lawn	1994 Survey %	1999 Survey %
Very important	22	16
Somewhat important	39	29
Not too important	27	28
Not at all important	12	26
Don't know		-
Single Family Homes N=	*2255*	*821*

Respondents with lawns were then asked how willing they would be to have a "natural lawn" (lighter green color, with few weeds and if mowed a little higher than usual). Nearly three-fourths (72%) said they would be either very (43%) or somewhat (29%) amenable to having a natural lawn, as shown in **Figure 22** below. Twenty-four percent (24%) said they would be either not too (13%) or not at all likely (11%) to have a natural lawn, and 4% didn't know.

Seattle customers are significantly more likely to be willing to have a natural lawn than Purveyor respondents, with 77% of the Seattle customers saying they would be very or somewhat likely compared to 69% of Purveyor customers.

Figure 22 - Likelihood of Having a Natural Lawn *(Q28)*

**How likely would you be to have a "natural lawn?"
(N=860)**

Not at all likely 11%

DK 4%

Not too likely 13%

Not at all likely 11%

Very likely 43%
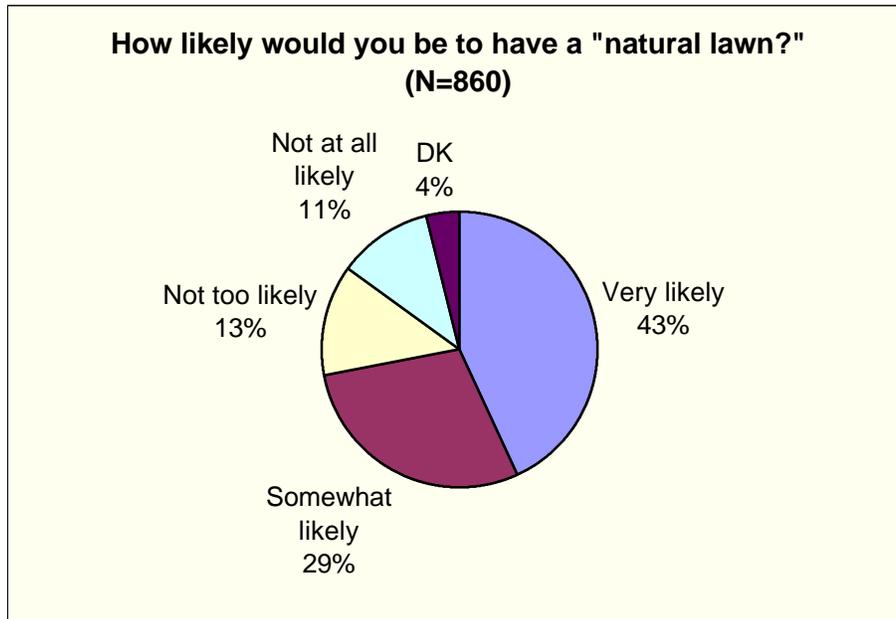
Somewhat likely 29%

Regional Comparison- Willingness to Have a Natural Lawn *Sig. = < .05*	Seattle %	Purveyor %
Very likely	48	40
Somewhat likely	29	29
Not too likely	8	16
Not at all likely	10	13
N=	*410*	*448*

Lawn Watering

Q29: About how often do you water your lawn during a typical summer?

When asked how often they watered their lawn during a typical summer, nearly a third (30%) of customers with lawns said they never water it. About a quarter (24%) water twice a month or less, or once a week;14% water every 3 days; 5% water every other day; and 2% water every day (**Figure 23**). No significant differences exist between Seattle and Purveyor customers.

As shown in **Table 13**, the trend toward never watering and watering less is on the rise. From 1991 to 1999, the percentage of single family households who never water has gone from 15% to 30% and the frequency of watering has dropped as well. For example, in 1991 the percent of customers watering their lawn twice a month or less was 14% compared to 35% in the 1999 survey.

Figure 23 - How Often Lawn Is Watered During a Typical Summer *(Q29)*

How often do you water your lawn in a typical summer? (N=860)

Never water 30%
Twice a month or less 24%
Once a week 24%
Every third day 14%
Every other day 5%
Every day 2%
DK 1%
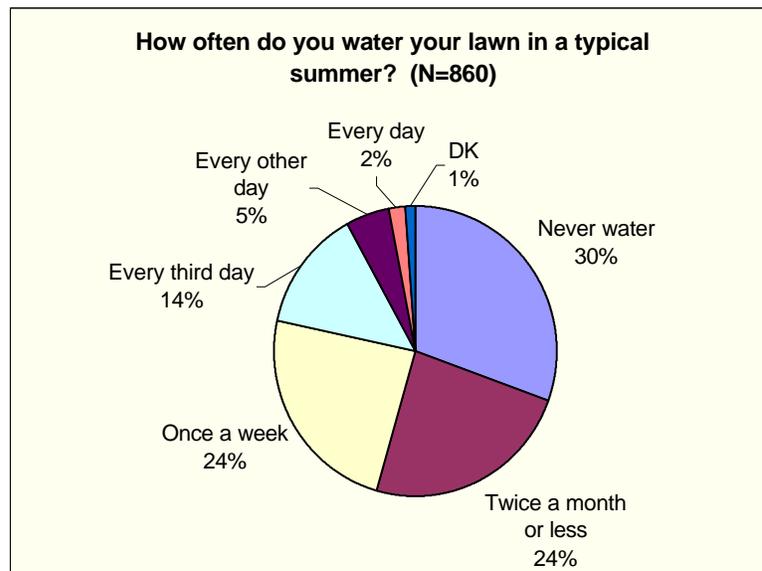
Regional Comparison—How Often Water? *N.S.*	Seattle %	Purveyor %
Never	36	27
Twice a month	23	24
Once a week	21	25
Every third day	14	15
Every other day	3	6
Every day	2	2
N=	*410*	*448*

Table 13 - How Often Lawn is Watered *(Q29)*

Over Time Comparison – How Often Water Lawn?	1991 Survey %	1994 Survey %	1999 Survey %
Never water	15	23	30
Twice a month or less	14	17	35
Once a week	26	35	35
Every three days	45	37	21
Every other day	14	9	7
Every day	2	2	2
(Single family households who have a lawn) N =	*Not availalble*	*2232*	*821*

Use and Maintenance of Automatic Sprinkling Systems

Q30: Do you use an automatic sprinkling system to water your lawn?

Q31: During the watering season, do you adjust the automatic system so that it waters less when it's cooler and more when it's hotter?

Q32: Do you inspect your automatic system for leaks at least once a year?

Lawn waterers were then asked if they used an automatic sprinkler system. While 79% of households do not use automatic sprinklers, 21% do, as shown in **Figure 24.** In addition, over half (59%) report they adjust the system for temperature changes, and 74% say they have the system inspected for leaks at least once a year (see call out boxes in **Figure 24**). No significant differences exist between Seattle and Purveyor customers, and no change occurred between the 1994 and 1999 surveys.
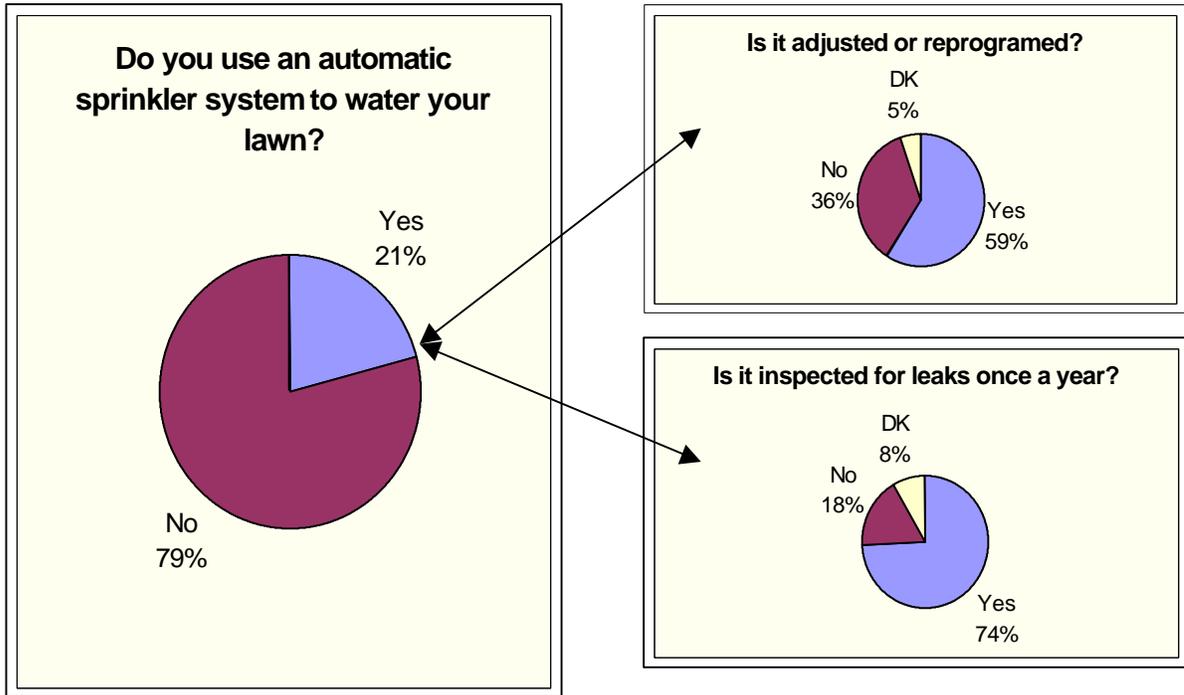
Figure 24 - Use Of Automatic Sprinkler System (Q30 - Q32)

Comparison-automatic systems	YES		NO	
All N.S.	Seattle %	Purveyor %	Seattle %	Purveyor %
Use a system? (N = 594)	19	23	81	77
Adjusted for temperature? (N = 125)	47	66	47	30
Inspected? (N = 125)	63	80	29	12

Table 14 - Use of Automatic Watering Systems

Over Time Comparison	1994 Survey %	1999 Survey %
Use automatic watering system	18	21
N=	*1594*	*594*

Lawn Care

Do you . . .

Q33. Usually mow your lawn with a mulching mower?
Q34. Usually leave your grass clippings on your lawn?
Q35. Usually use an organic or slow release fertilizer on your lawn?
Q36. Usually use a "weed 'n' feed" type product on your lawn?
Q37. Usually use pesticides to control crane flies?
Q38. Usually aerate and over-seed your lawn?

All respondents with lawns (70% of the population) were asked a series of questions about the methods they use to care for their lawns (see **Figure 25** below). Just over half (52%) report they leave grass clippings on their lawns, 43% use a mulching mower, 41% use organic or slow release fertilizer, and 29% aerate and over-seed their lawns – all water saving, environmentally friendly practices. However, 34% say they use a weed-n-feed type product and 13% said they use pesticides to control crane flies – both less environmentally sound.

Some significant differences do surface between Seattle and Purveyor customers. While they are equally likely to use a mulching mower and organic fertilizer, Seattle customers more likely leave grass clippings on the lawn, while Purveyor customers more likely aerate and over-seed their lawns. Purveyor customers are also more likely to use weed 'n' feed type products and pesticides to control crane flies.

Figure 25 - Lawn Care Practices *(Q33-38)*

In caring for your lawn, do you usually…(N=860)

Practice	Yes	No	DK
Leave grass clippings	52%	45%	3%
Use mulching mower	43%	50%	7%
Use organic fertilizer	41%	44%	15%
Use weed-n-feed	34%	58%	8%
Aerate and over seed	29%	66%	5%
Use pesticides	13%	81%	5%
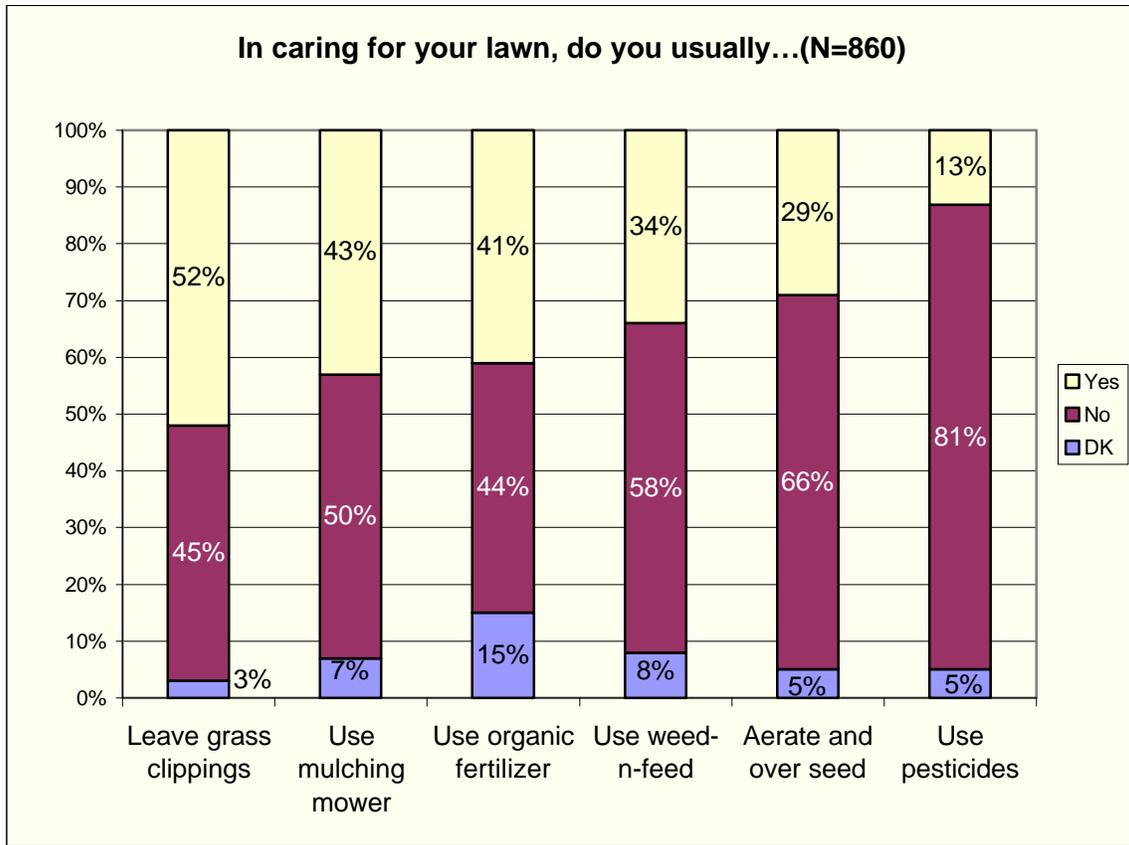
Regional Comparison- Lawn Care Practices	YES		NO	
	Seattle %	Purveyor %	Seattle %	Purveyor %
Leave grass clippings *Sig. = < .05*	55	50	41	49
Use mulching mower *N.S.*	41	45	50	50
Use organic fertilizer *N.S.*	37	43	48	42
Use weed n feed *Sig. = < .05*	26	40	65	52
Aerate and over seed *Sig. = <.05*	21	34	73	61
Use pesticides	8	18	87	77
N=	*410*	*448*	*410*	*448*

Lawn Removal and Replacement

Q39: In the past five years, since 1994, have you removed any of your lawn?

Q40: Did you replace your lawn with garden areas with plants and shrubs, including rockeries, or something else like a patio, deck, or garage?

Respondents were asked if they had removed any of their lawn in the past five years. Nearly 3 in 10 (29%) said they had, as shown in **Figure 26**. When asked what they are replaced the lawn with, 70% said they had replaced it with garden areas, and the remaining 30% replaced it with something else. **Table 15** suggests there may be a slight decrease in single family households removing lawn between 1994 and 1999.

Figure 26 - Replacement of Lawn in the Yard *(Q39-40)*
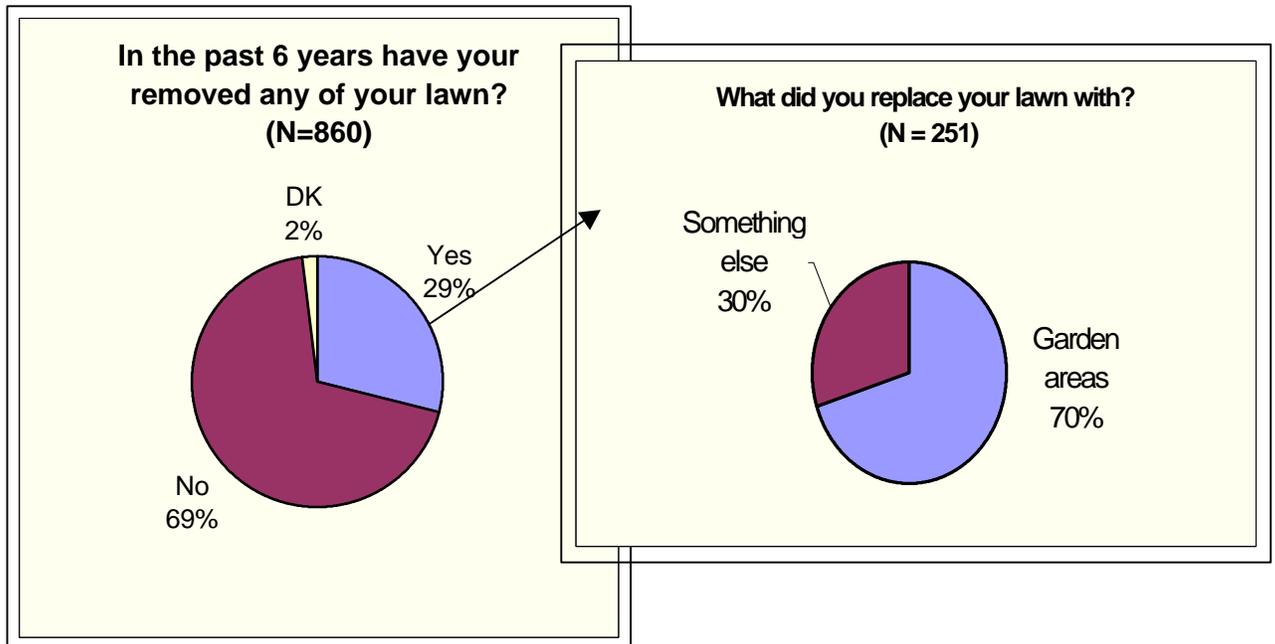
Regional Comparison--- Removed Lawn? *N.S.*	Seattle %	Purveyor %
Yes	32	27
No	66	71
N=	*410*	*448*
If Yes: Replaced with garden?	77	64
Replaced with something else?	23	36
N= (yes above)	*132*	*120*

Table 15 - Removed any Lawn? *(Q39)*

Over Time Comparison – Removed Any Lawn?	1994 Survey %	1999 Survey %
Yes	35	30
No	65	69
N= (those who have a lawn)	*1517*	*821*

Other Yard Care Practices

Q41. Do you mostly maintain your own yard, mostly hire a professional yard service to maintain it, or do you do both?

Most respondents (75%) maintain their own yards while 13% use a yard service and 11% do both (**Figure 27**). Seattle and Purveyor customers do not differ on this question.

Figure 27 - How Yard is Maintained *(Q41)*
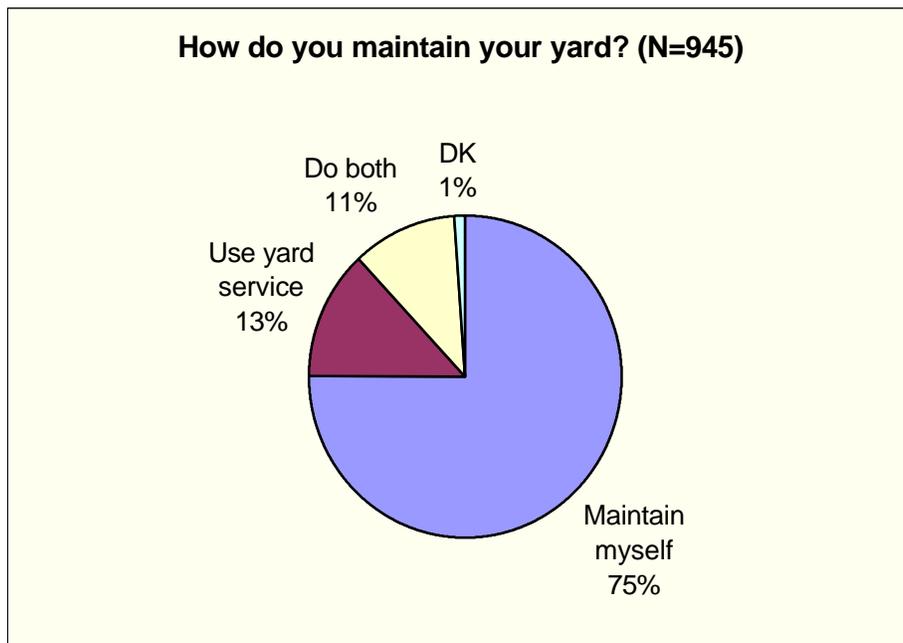
Regional Comparison – Who Maintains Yard? *N.S.*	Seattle %	Purveyor %
Self	73	77
Service	14	12
Both	11	11
Dk	1	0
N=	445	497

Q42. Do you use any low volume watering methods in your garden such as drip irrigation?

Q43. Do you usually mulch your planting beds?

Q44. Do you usually improve your soil with compost or other organic amendments?

As shown in **Figure 28** below, respondents show little use of low-volume watering (69% say they don't), but over half (54%) usually mulch and two-thirds (66%) usually use compost. Seattle and Purveyor customers do not differ.

Figure 28 - Use of Low-Volume Watering *(Q42)*, Mulching *(Q43)*, and Composting *(Q44)* Methods
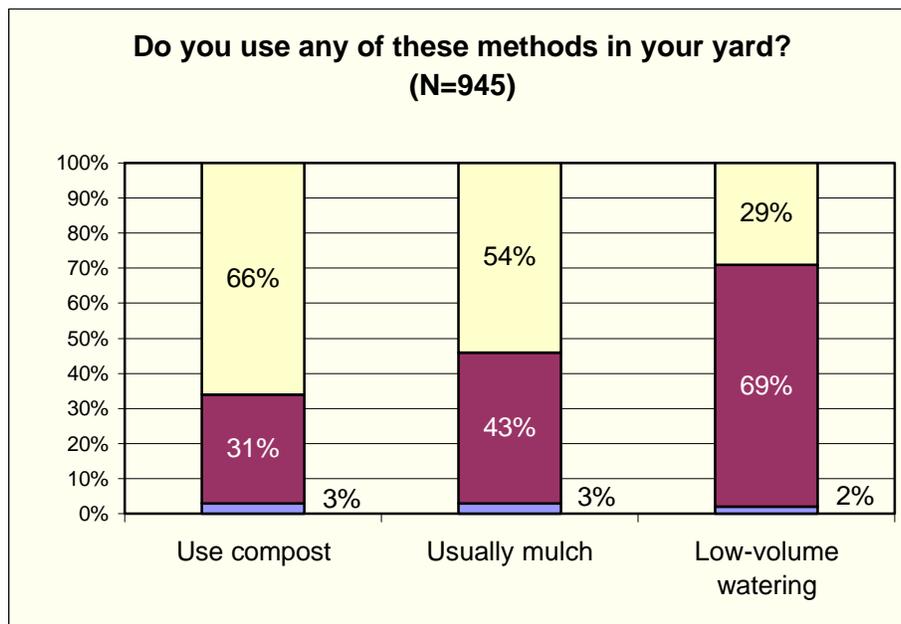
Regional Comparison-do you. . .? *All N.S.*	YES		NO	
	Seattle %	**Purveyor %**	**Seattle %**	**Purveyor %**
Use compost	66	65	32	30
Usually mulch	56	53	42	43
Low-volume water	31	27	66	71
N=	*445*	*497*	*445*	*497*

CHAPTER FIVE – COMMUNICATING ABOUT WATER RESOURCE ISSUES

Q45: Where would you most likely get information about lawn and garden care?

As shown in **Figure 29**, about a third of all customers (30%) go to local nurseries or garden centers when they need information about lawn and garden care. Another 21% use books and magazines; 14% read newspaper articles, columns and ads, 6% surf the internet, and another 6% get information from radio and TV shows or ads. Other sources include friends and family (3%), professionals and organizations (3%), their own experience (2%) and mail or other printed matter (2%). Nine percent (9%) said they don't seek lawn and garden care information and 4% didn't know.

Although the statistics indicate there may be differences between Seattle and Purveyor in terms of where they get their lawn and garden information, only small percentage differences occurred, with the largest difference between them being 4%.

Figure 29 - Information about Lawn and Garden Care *(Q45)*

Where do you usually go to get information about lawn and garden care?(N=1223)

- Other * 10%
- DK 4%
- Media-Radio/TV 6%
- Internet 6%
- None-don't get information 9%
- Newspaper articles/ads 14%
- Books and magazines 21%
- Local nursery/garden center 30%
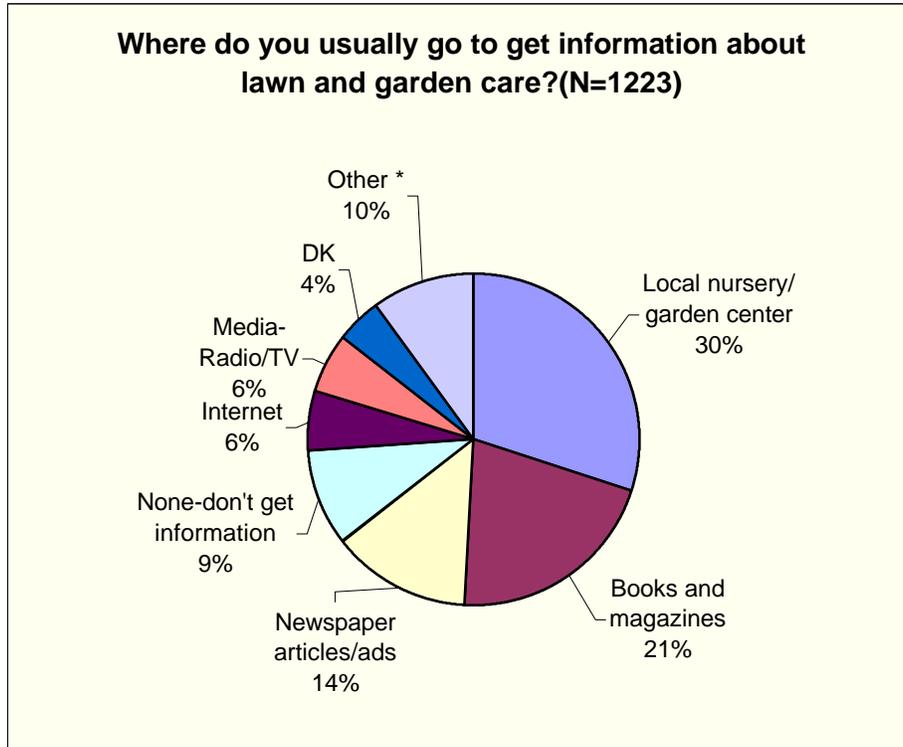
Q46: Where would you most likely get information about appliances such as showerheads, toilets and washing machines?

Respondents were also asked where they were most likely to get information about appliances, such as showerheads, toilets, and washing machines. As shown in **Figure 30** below, nearly half (49%) go to home improvement, hardware, or appliance stores. Another 15% utilize books and magazines; 11% read newspaper articles, columns and ads, 6% surf the internet, and 4% get information from radio and TV shows or ads.

Other sources include friends and family, professionals and organizations, own experience, and mail or other printed matter (2% each). Six percent (6%) said they don't seek appliance information and 3% didn't know. No significant differences occurred between Seattle and Purveyor customers.

Figure 30 - Information About Appliances *(Q46)*

Where do you usually go to get information about appliances? (N = 1223)

- Other * 7%
- DK 3%
- Media-Radio/TV 4%
- None-don't get information 6%
- Internet 6%
- Newspaper articles/ads 11%
- Books and magazines 14%
- Home improvement, hardware, or appliance store 49%
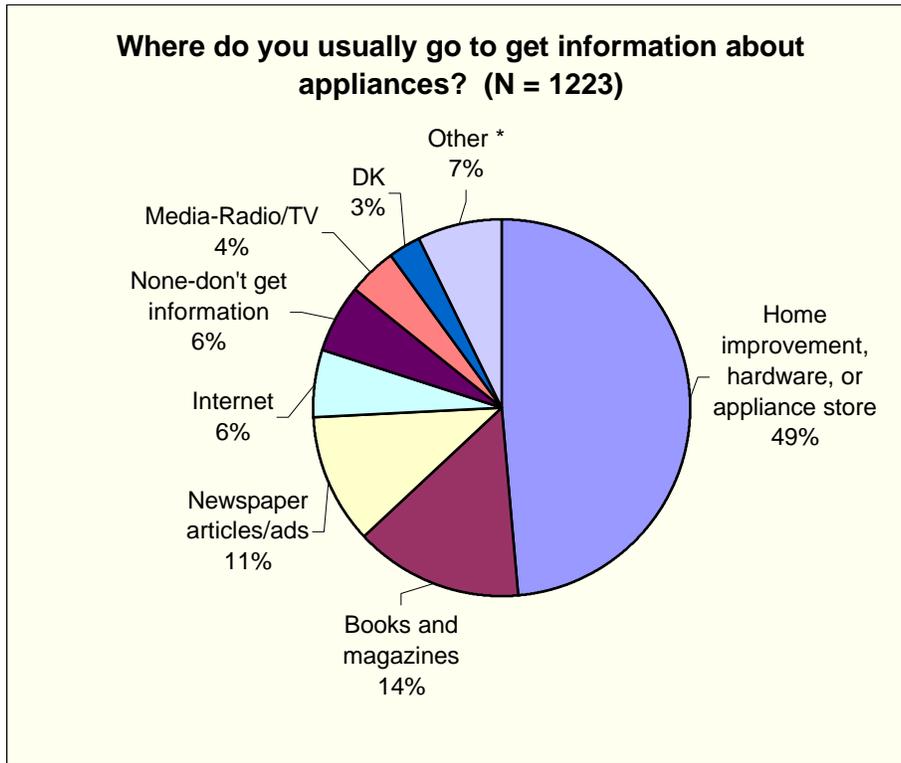
Q47: And where would you get information about water supply and environmental issues such as restoring salmon runs, preventing pollution, and managing garbage?

Respondents were next asked where they were most likely to get information about water supply and environmental issues such as restoring salmon runs, preventing pollution, and managing garbage. As shown in **Figure 31**, the most popular source (selected by 40% of respondents) was newspaper articles and columns. Twenty-four percent (24%) go to government or utility sources; 12% get information from radio and TV shows or ads; 7% surf the internet; and 6% utilize books and magazines.

Other sources included "all of the above" (2%), "word of mouth" (1%), and experience, school, phone books, and environmental groups received less than 1% each. Four percent (4%) didn't know and 3% said they don't seek information about water supply and environmental issues. Again, Seattle and Purveyor customers use similar sources.

Figure 31 - Information About Water Supply and Environmental Issues (Q47)

Where do you usually go to get information about water supply and environmental issues? (N = 1223)

- Newspaper articles and columns 40%
- Government or Utility 24%
- Radio, TV shows/PSAs 12%
- Internet 7%
- Books and Magazines 6%
- DK 4%
- None-don't get information 3%
- Other * 4%
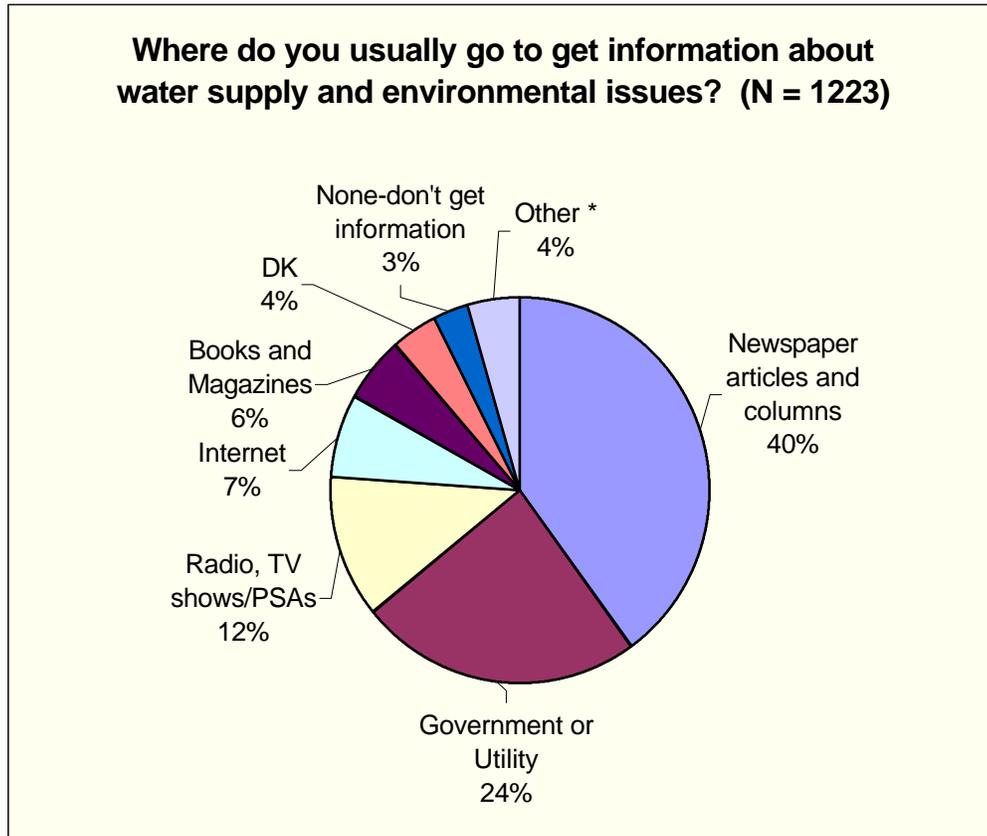
Q48: Which one of the following six words would you most like to see or hear in a message about how you could help to manage our resources: sustainable; conservation; environmental; natural; naturally, and salmon friendly.

To help in developing a public information campaign on managing resources, respondents were asked to choose one of six words they would most like to see or hear in a message about how to help to manage our resources. As **Figure 32** below shows, the two most popular words were "conservation" (selected by 25% of respondents) and "environmental" (selected by 22%) – two old familiar standbys. In descending order, the remaining choices were "sustainable" (15%), "natural" (13%), "naturally" (10%) and "salmon friendly" (9%). Six percent (6%) didn't know.

Both Seattle and Purveyor customers put conservation and environmental at the tops of their lists, but further down the list, Seattle respondents tended to favor sustainable a bit more than Purveyor respondents, and Purveyor respondents tended to favor natural a little more than Seattle respondents.

Figure 32 - "Message" Words Regarding Managing Resources *(Q48)*

What one word would you most like to see or hear in a message about how you could help to manage our resources? (N = 1223)

DK
6%

Salmon Friendly
9%

Naturally
10%

Natural
13%

Sustainable
15%

Conservation
25%
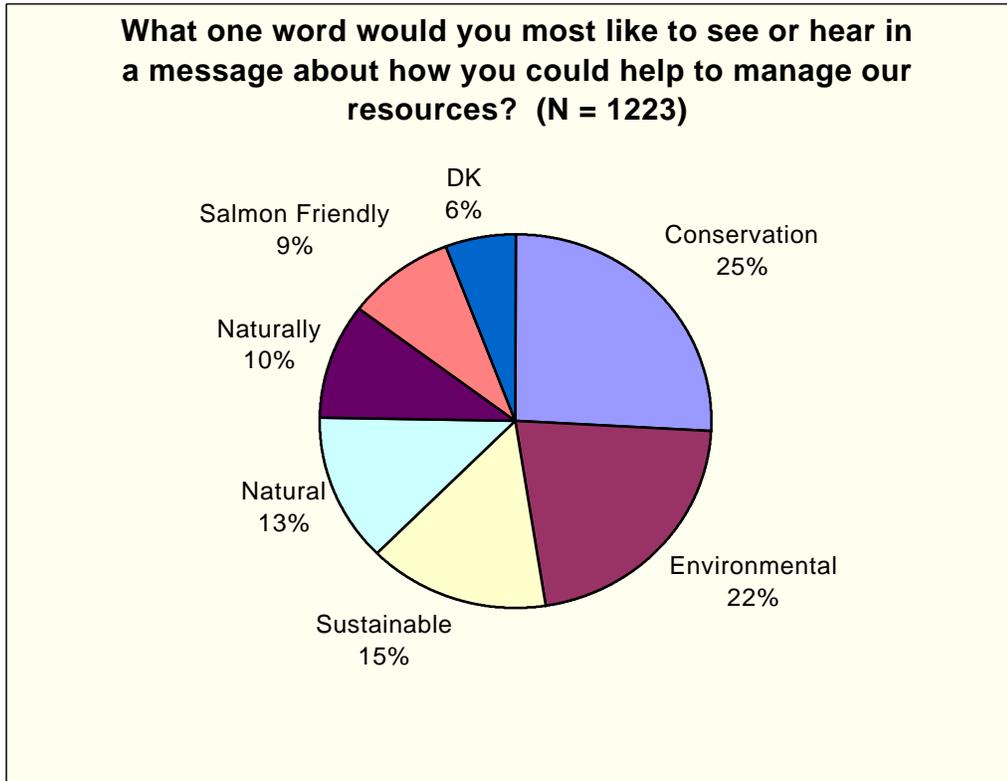
Environmental
22%

Regional Comparison – Message Word *Sig. = <.05*	Seattle %	Purveyor %
Conservation	24	27
Environmental	23	22
Sustainable	18	13
Natural	10	15
Naturally	10	10
Salmon friendly	9	8
DK	6	6
N=	*603*	*620*

Q49: Please complete this sentence. "It's important for people in our area to manage our resources because. . . .

This question was designed to gather insights about how customers think and express their views about the importance of cozening our resources. It's value is in its qualitative, rather than quantitative nature, so that communication tools can be developed that resonate with customers. However, several major categories emerged about why the efficient use of resources is important to people in the Puget Sound area, listed below. (The categories are listed according to how frequently they occurred, from most to least.)

At the top of the list are two strong themes: protecting the welfare of those who will inhabit the earth in the future, and personal responsibility (*If we don't, who will?* one person asked).

➢ We need to save for future generations

➢ We're the stewards; it's our responsibility

➢ We don't want to run out

➢ We have limited resources; it's all we have

➢ We need to protect the earth, the environment, our health, our survival

➢ We have a growing population and have to support it

➢ It's important, the right thing to do, common sense

➢ We'll have damage, waste, problems if we don't

➢ It's expensive if we don't; not to save would be costly

➢ Government isn't doing a good enough job

CHAPTER SIX – PROFILES OF KEY CUSTOMER SEGMENTS

This chapter further "slices" the survey data to profile consumer segments of interest to SPU and its Purveyors. Key questions were crosstabulated by demographics (e.g., income), attitudes, and behaviors to discover if significant differences emerged. These differences help define which customer segments are already conserving and which segments provide opportunities for more conservation. (Please note that considerable overlap may exist for certain variables; for instance, 93% of homeowners live in single family homes, and 65% of renters live in buildings with three or more units.)

Crosstabulations where the Chi Square statistic was equal to <.05 are highlighted in this chapter; this statistic means there was less than a 5% probability that the differences across groups occurred by chance. Customer segments related to attitudes are presented first, followed by segments for indoor and outdoor water uses.   For Seattle/Purveyor comparisons, please see the previous chapters. For further specific statistics, please refer to the set of data tables, or the electronic data file, on file with SPU.

Attitudinal Segments

Importance Of Conserving

Those who believe in the importance of conserving water have different attributes than those who feel conserving in not important. Those who feel conservation is very important more often:

➢ Live on small to average size lots. Those who say it's not important to conserve tend to live on larger lots of ¼ acre or more.

➢ Have incomes below $75K. Those who say conserving is not important more often have incomes above $75K.

➢ Are women (59%) rather than men (41%). Those who feel conserving is not important are more likely to be men (58%) rather than women (42%).

➢ Are more concerned about future water supplies and feel their individual actions can greatly affect water supplies.

➢ Are most motivated to conserve for environmental reasons (65%), as shown in **Table 16**.   While the environment is an important motivator for all groups, saving the environment becomes a less strong motivator and money becomes a stronger motivator as the importance of conservation decreases.

Table 16 - Most Important Reason To Conserve *(Q 10)* **By Importance Of Conservation** *(Q4)*

How important to conserve. . .?	Very Important %	Somewhat Important %	Not Important %
Saving salmon	12	11	4
Saving money	12	16	24
Saving on new supplies	9	10	10
Saving the environment	65	59	50
N =	606	517	93

How Much More Water Can You Save?

Those who say their households can realistically save at least somewhat more water also differ from those who say they can't save more. Those that think they can save at least 5% more water are more likely to:

➢ Live in households with three or more occupants. Of those who say they can't save more water, 73% live in one and two person households.

➢ Be between 18 and 55 years of age. Of those who say they can't save any more water, 59% are above age 55.

➢ Have incomes above $50K per year. 68% of those who say they cannot save more water have household incomes less than $50K.

➢ Believe their individual actions can affect supplies and that conserving water is at least somewhat important.

Indoor Use Segments

Installing Low-Flow Showerheads

In 1992, Seattle and Purveyor utilities distributed low-flow showerheads to their customers. In this survey, we asked consumers if they installed this showerhead and 51% overall said yes. Data show that certain consumer segments were much more likely to install the showerheads than others:

➢ The older the respondent, the more likely they were to report the showerhead had been installed, with younger respondents (18-34 years of age) much less likely than any other age group to report it had been installed (32% versus more than 50% for every other age group).

➢ The more importance consumers place on conserving, the more likely they were to report having installed the showerheads (56% among those who said it was

very important to conserve, compared to 29% among those who said it was not too important to conserve).

➢ No significant differences for showerhead installation emerged by ethnicity, income, gender, level of concern about water supply, and the most important motivation to conserve.

Toilets: Awareness Of Water Used In Flushing

The population data revealed that many consumers are not aware that toilet flushing is one of the top two uses of water indoors in most people's homes. However, certain groups of consumers are more aware of this than others, including:

➢ Significantly more multi-family than single family dwellers chose toilet flushing as a top use (54% to 46%). This is likely due to the lower proportion of clothes washers in multi-family homes.

➢ The smaller the household size, the more likely respondents were to pick toilet flushing as a top use (1 person = 62%; 2 persons = 48%; 3 persons = 41%).

➢ Older respondents were much more likely to choose toilet flushing (54% for those 65+ versus 43% for those 18-34).

➢ No differences emerged by ethnicity, income, gender, level of concern about water supply, the importance of conserving, or the most important motive to conserve.

Toilets: Multiple Uses Before Flushing, Checking For Leaks, Replacements

The number of toilets consumers have in their homes appears to be related to household size and type rather than any attitudes about conservation. However, the use, maintenance, and replacement of toilets vary by a number of factors.

Households who allow multiple uses before flushing the toilet (39% of the population), those who check their toilets for leaks (65%), and those who have replaced their toilets in the last seven years (29%) are already saving water as a result of these behaviors. Characteristics of households taking these conservation steps, and those that are not, are described below.

Those Who Allow (And Don't Allow) Multiple Uses Before Flushing

➢ One person households are more likely to flush less than those in larger households (1 person = 42% allowing multiple flushes; 2 persons = 37%; 3+ persons = 39%).

➢ Those above 35 are likely to flush less than consumers in the youngest age group (18-34 years) where only 29% allow more than one use before flushing .

➢ As income decreases, so does the tendency to flush with each use. Consumers in the highest income group ($100K+) are least likely to allow two or more uses before flushing (30%).

➢ Individuals who are concerned about future water supply and those who say it is very important for their household to conserve water are more likely to allow multiple uses before flushing.

Those Who Check For Toilet Leaks And Those Who Don't

➢ Homeowners are much more likely than renters to have checked their toilets for leaks, as are those living in single family homes compared to those living in multi-family homes.

➢ Older consumers are also much more likely to have checked for leaks than younger consumers (75% of those 55-64 compared to 46% of those 18-34).

➢ Men check for leaks much more often than women (69% to 61%).

➢ Consumers who believe it is very important to conserve have checked for toilet leaks more often (69% compared to 58% of those who say it's not too important to conserve).

Those Who Have Replaced Toilets In The Past Seven Years

➢ Those living in larger households are much more likely to have replaced a toilet in the past seven years.

➢ Consumers between 45 and 54 are the most likely to have replaced a toilet (34%) in that time frame.

➢ Those with the highest incomes ($100K and above) are more likely than any other income category to have changed out a toilet (35%).

➢ No differences emerged by gender, level of concern about supply, the importance of conserving, or the most important motivation to conserve.

Toilets: Future Replacements

A toilet replacement program is currently being planned for residential customers. This section describes those who already plan to replace a toilet in working order in their home within the next two years (8%), and those who would likely do so if they could do it for $100.00 and knew they would be paid back within two years through reduced water and sewer bills (18%). (Note: These groups are not mutually exclusive.)

Those Who Will Likely Replace A Toilet On Their Own

➢ As household size increases, so does the likelihood of toilet replacement (10% for single person households; 19% for 3+ member households).

➢ The plan to replace a toilet does not appear related to customer income, age, ethnicity, gender, or *most* attitudes about conservation (e.g., importance of conserving). Indeed, customers are most strongly motivated to replace their toilets by the desire to remodel their bathrooms.

➢ Still, those who think they can do more to save water are significantly more likely to say they will replace a toilet. And, consumers did give saving on water use and the water bill as a secondary reasons for toilet replacement. Saving water and saving on the bill more strongly motivate single family homeowners than other groups.

Those Who Will Spend $100.00 To Replace A Toilet If Payback Is Two Years

➢ As household size increases, so does the likelihood of replacing a toilet under this scenario (14% for single person households; 21% for 3+ member households).

➢ Those aged 45-54 are the most likely to change out a toilet under this scenario (25%), while those who are 55+ are the least likely.

➢ As income rises, so does the interest in spending $100 to replace a toilet (15% very likely for those households earning less than $25K compared to 25% for those households with $100K annual income).

➢ Among those who say they have a great deal more water to save, only 8% say they plan to replace a working toilet on their own. However, when presented with the scenario of spending $100 and getting a two year payback, 24% say they would be very likely to replace their toilets. This scenario motivates all consumers, no matter how much they have to save, but those who think they have the most to save are the most motivated, as shown in the table below:

Table 17 - Toilet Replacement Under Various Conditions

How Likely to Install. . .	Save Great Deal More		Save Some More		Save a Little More		Save No More	
	On Own	Spend $100	On Own	Spend $100	On Own	Spend $100	On Own	Spend $100
	%	%	%	%	%	%	%	%
Very Likely	8	24	9	22	6	16	6	13
Somewhat Likely	9	24	10	25	6	24	5	12
N =	178	180	363	357	362	390	256	263

➢ As people feel it's more important to conserve, they're also more likely to say they will replace their toilet (22% who say it's very important to conserve are also

very likely to replace; only 9% of those who say it's not important to conserve are very likely to replace).

➢ Those who chose "saving salmon" as the most important motive to conserve are also the most likely, by far, to say they would likely change (29% very likely, compared to 19% who were most motivated by preserving the environment, and 12% each for those who were most motivated by saving on the bill and by wanting to delay the cost of new supplies).

Outdoor Use Segments

General Yard and Garden Practices

Who Maintains The Yard?

Most consumers (75%) maintain their own yards, but there is variation by demographics as described below.

➢ Owners more often maintain their own yards than renters (77% vs. 63%), and renters more often use a yard service (22% vs. 12% for owners).

➢ Members of larger households more often maintain their own yards (86% for households of 3+ vs. 55% for single-person households), and single-person households more often use a yard service (29% vs. 7% for households of 3+).

➢ People 65 years and older are much less apt to maintain their own yards (63% vs. 75% for the population), and are more apt to use a yard service (23% vs. 13% for the population).

➢ Gender and attitudes toward conservation have no affect on whether or not individuals maintain their own yards.

Who Mulches Planting Beds And Uses Compost?

While demographics affect these two behaviors, attitudes about conservation and the environment are probably the strong determinants.

➢ Owners are more likely than renters to mulch their beds and use compost.

➢ Larger households and households with more land tend to compost more.

➢ The youngest age group of consumers (18-34 years) is significantly less likely to mulch their planting beds or use compost than older consumers.

➢ Caucasians are far more likely than other ethnic groups to improve their soil with organic amendments (68% compared to 34% for African Americans and 56% for Asians).

➢ The highest income group (100K+) is more likely to mulch their beds (64% vs. 54% for the population).

➢ Individuals who say it is very important for their household to conserve water; who feel their households' actions can greatly affect whether future water demands are met; who feel it's very important to conserve; and who are most motivated by saving the environment and salmon are also more likely to mulch beds and add organic amendments to soil.

Incidence And Size Of Lawn

The presence of and size of lawn are primarily affected by demographics and are mostly common sense (e.g., single family homes and those with larger lots are more likely to have larger lawns). Interestingly, size of lawn does not appear to be affected by individuals' attitudes towards water supply or conservation. For instance, those who feel it's very important to conserve do not have significantly smaller amounts of lawn in their yards.

Importance Of Having A Green Lawn

Customers were asked how important a green lawn was as part of their landscaping (36% overall say it's important) and how likely they would be to have a natural lawn (43% very likely).   Some demographic characteristics (such as homeownership and income) affected preferences, and attitudes about conserving water had a consistent and strong effect.

➢ Owners more often say that a green lawn is important compared to renters (48% vs. 33%), and renters more often say that a green lawn is not at all important compared to owners (39% vs. 25%).

➢ Households where it is very important to conserve water are more likely to say a green lawn is not at all important (31%). But in households where conserving is not important, fewer feel lawns are not important (17%).   A similar pattern holds true in comparing households that feel they can greatly affect future supplies by their individual actions versus those that feel individuals actions have little affect on future supplies, as shown in **Table 18** below:

Table 18 - Importance Of A Green Lawn *(Q27)* By Conservation Attitudes

	Effect of Individual Actions			**Importance of Conserving**		
Import of Green Lawn	**Great %**	**Some %**	**Little %**	**Very %**	**Somewhat %**	**Not %**
Very Important	14	16	24	14	16	21
Not At All Important	34	19	27	31	22	17
N =	365	391	82	437	361	58

➢ Individuals between 45 and 54 years are most likely to want a natural lawn (52% say very likely). Individuals 65 years or older are least likely to want a natural lawn (32% say not too or not at all likely compared to 24% in the population).

➢ The highest income groups ($100K and over) are least likely to want a natural lawn (38% very likely), and 16% say they are not at all likely to have a natural lawn compared to 11% in the population.

➢ Individuals who say it is very important for their household to conserve water and those who feel their households' actions can greatly affect whether future water demands are met are most likely to want a natural lawn, as shown in **Table 19** below.

Table 19 - Likelihood Of A Natural Lawn by *(Q28)* By Conservation Attitudes

	Effect of Individual Actions %			Importance of Conserving %		
Likelihood of Natural Lawn	Great %	Some %	Little %	Very %	Somewhat %	Not %
Very Likely	51	36	41	48	41	25
Not At All Likely	10	10	15	12	9	17
N =	365	391	82	437	361	58

Frequency of Watering

Frequency of lawn watering is affected by some demographics (such as home ownership and income) and by individuals' attitudes towards conserving water.

➢ Renters are significantly more likely than homeowners to never water their lawns (42% to 30%).

➢ As income levels rise, so does the frequency of watering, as shown in the **Table 20** below.

Table 20 - Frequency of Watering by Income Levels

	Under $25K %	$25-$50K %	$50K-$75K %	$75-$100K %	$100K & above %
Waters twice a month or less (includes never water)	66	60	56	51	48
Waters once a week or more	33	38	43	48	51
N =	85	183	130	91	98

➢ Individuals who say it is very important for their household to conserve water and those who feel their households' actions can greatly affect future water supply are most likely to never water.

Lawn Removal

Removing lawn is one method for usually reducing use; 29% of the population overall have done so. The characteristics of those most likely to have removed part of their lawn are described below.

➢ Not surprisingly, single family homeowners are most likely to have removed part of their lawn.

➢ Those with the largest lots (1/4-1/2 acre and ½ acre or more) are least likely to have removed lawn (24% and 22%, respectively).

➢ Larger households are more apt to have removed lawn (33% for households of 3+ compared to 17% for single-person households).

➢ Individuals between 45 and 54 years are most likely to have removed lawn (39%), and those 65 years and older are least likely to have removed lawn (15%).

➢ Attitudes towards water conservation appear to have no effect on removal of lawn.

Traditional and Environmentally Friendly Lawn Care Practices

The findings suggest that there are two types of lawn care approaches. Unfortunately, they share some of the same demographic characteristics.

1. The non-environmentally friendly, "traditional" approach that picks up their lawn clippings, uses non-organic fertilizers, weed-n-feed, and pesticides. This group is also more likely to over-seed and aerate their lawns. They do not tend to be motivated by conservation attitudes, since those who follow these procedures are more likely to water often and less likely to never water.

2. The environmentally friendly approach that uses a mulching mower and/or leaves their grass clipping on the lawn, organic fertilizers, no weed-n-feed and no pesticides. This group uses over-seeding and aerating less than the group above, but they do water less often and are motivated by the need to conserve.

➢ Those with two or more people in the household are much more likely to use a mulching mower (45% to 33% for single person households) and leave grass clippings on the lawn. However, larger households are also more likely to aerate and over-seed, and use pesticides.

➢ Unlike a variety of other findings, the youngest consumers (18-34) are also the most likely to use a mulching mower (54% compared to 43% in the general population) and leave on grass clippings. Older consumers are much more likely to use fertilizer (organic or otherwise) and weed-n-feed type products.

➢ Those households with the highest incomes are more likely than those with lower incomes to use fertilizer, weed-n-feed, aerate and over-seed, and use pesticides.

➢ Those who are more concerned about conservation are more likely to use fewer chemical products on their lawns.

Watering Practices

Who Uses Low Volume Watering?

➢ Those with lots over ½ acre in size are more likely to use low volume watering methods (38% vs. 29% for the population).

➢ Owners are more likely to use low volume watering methods (30% vs. 13% for renters).

➢ Use of low volume water methods increases steadily with age (17% for those 18-34 years old and 35% for those 55-64 years); however, use of low water methods falls off slightly among those 65 years and older to 29%.

➢ Individuals who say it is very important for their household to conserve water and those who feel their households' actions can greatly affect whether future water demands are met are more likely to use low volume watering methods.

➢ Those with low volume water systems are more likely to have removed lawn.

Who Uses Automatic Sprinkler Systems?

➢ Owners are more likely to use a sprinkler system than renters (22% vs.14%).

➢ Individuals living on lots over ½ acre are more likely to use sprinkler systems (33% compared to 21% for the population).

➢ As income increases, there is a steady increase in the use of sprinklers: 33% of individuals in the top income bracket ($100K and over) use sprinklers while 8% of those making less than 25K use them.

➢ Individuals who say it is not important for their households to conserve water are most likely to use an automatic sprinkler system (29% compared to 21% for the population). While automatic sprinkling systems can be the most efficient if used properly, this is probably not the reason people install them (i.e., for convenience, not conservation).