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# **King County**

## **Department of Natural Resources and Parks**

### **Water Quality Survey**

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December 2007

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Department of Natural Resources and Parks

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## METHODOLOGY

This report is based on the findings of a telephone survey conducted December 18-20, 2007 by EMC Research. Four hundred one (401) King County residents were selected for interviewing using an RDD (Random Digit Dial) sample. This sampling method uses a computer-generated list of potential phone numbers in the desired geography (King County) and means that every working phone number in King County has an equal chance of being selected for participation. Respondents were interviewed by trained, professional telephone interviewers. Respondents were screened to make sure they were over 18 years old and lived in King County. The margin of error for the overall survey results is  $\pm 4.9$  percentage points at the 95% confidence level. This confidence level means that if the survey were repeated, it would provide the same results to within  $\pm 4.9$  percentage points 95 times out of 100.

### Research Design Summary

<b>#Interviews:</b>	401
<b>Interviewing Dates:</b>	December 18-20, 2007
<b>Margin of Error:</b>	$\pm 4.9$ points at the 95% confidence level
<b>Universe:</b>	King County residents 18 years or older

Results are compared where appropriate and possible to previous water quality surveys conducted by EMC.

## **KEY FINDINGS**

- 1. Global warming is now the top environmental issue in King County. Perception of its importance has grown every year since 2004. Water Pollution/Quality is still a top problem, ranking second.**
- 2. Since 2001, virtually all residents have agreed that water quality directly affects salmon, and they have consistently viewed the salmon population as at risk, albeit moderate risk. Most King County residents (67%) are aware that the county provides salmon and habitat protection; however, residents' evaluation of that protection is correlated with their awareness of it. As a result, improving the County's job performance is partially a function of effective education. But even among those residents who are aware of the County's services, nearly half (49%) still say the County is doing too little to bring salmon and bull trout back from endangerment.**
- 3. A majority of residents are aware of most County water quality services, but only a quarter say they have seen or heard something recently about the County's efforts. (The top mention being the new treatment plant.) In addition, the County experienced higher negative ratings for stormwater and groundwater management compared to last year's survey—a possible result of last fall's flooding.**
- 4. Residents' ratings for the job King County does protecting water quality are similar to 2006. When asked how important a variety of items were for protecting water quality, improving treatment of sewage before it is discharged was the top answer.**

- 5. There continues to be strong support for the use of biosolids. Using biosolids for restoring land without vegetation continues to be preferred choice among the options tested. And though use of biosolids as compost or topsoil is the least-preferred option, a solid majority (64%) still say they are likely to use biosolids for this purpose.**
- 6. County residents continue to overwhelmingly support reusing as much wastewater as possible, with few objections for its use in industry, municipal services, or for watering adult-use fields and landscaping. There is some concern about school fields that children use. A majority would be more likely to patronize a business or purchase a product if reclaimed water had been used. And a majority (67%) are willing to pay an extra dollar each month to help build a reclaimed water distribution system.**
- 7. As in previous years, a strong majority of residents (71%) are willing to pay \$1.50 per month on their sewer bill to reduce sewage and stormwater releases into Puget Sound. However, support for \$3/month barely reaches above half (54%).**

## MOST IMPORTANT ENVIRONMENTAL ISSUE

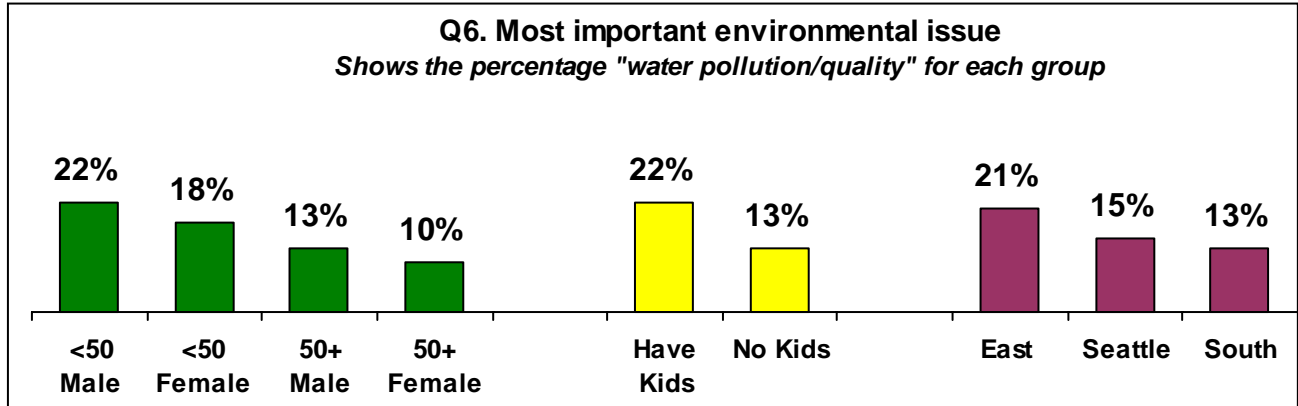
Global warming is now the top environmental issue in King County. Perception of its importance has grown every year since 2004. Water Pollution/Quality is still a top problem, ranking second.

- Global warming, air pollution, and traffic/transportation can be viewed as part of one larger context--all three issues interlock and represent 40% of all mentions.
- Within that larger context, the concern is definitely shifting towards global warming specifically—as opposed to the more general “air pollution.” Global warming’s importance has increased every year since 2004, while air pollution’s importance has decreased each of those years.
- Though the importance of Water Pollution/Quality has decreased each year since 2003, the decrease is not necessarily a reflection of improvement in this area—it is still the second-highest concern.

What do you think is the most important environmental issue facing our region today?

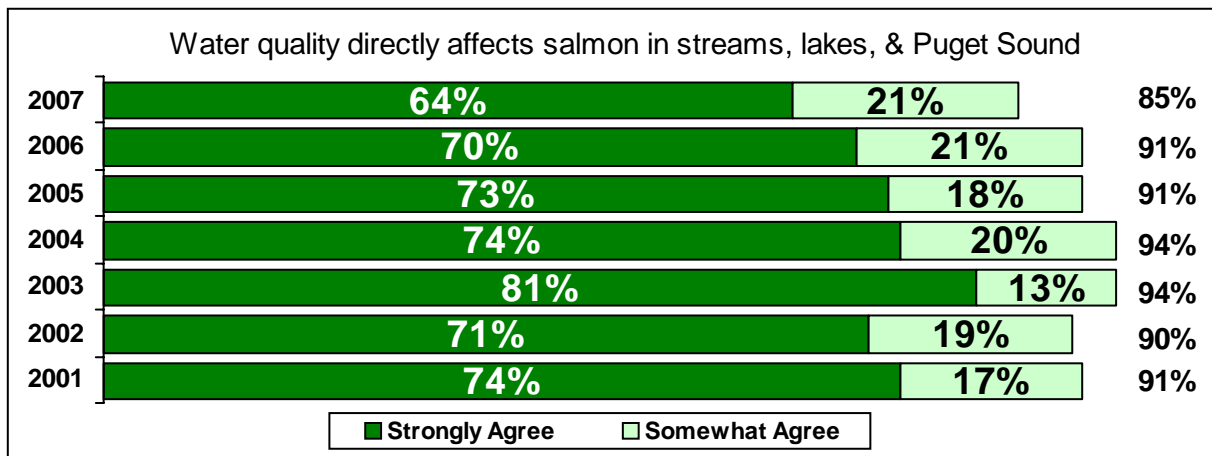
Issue	2000	2001	2002	2003	2004	2005	2006	2007
Global Warming	5	3	6	4	6	7	16	18
Water pollution/quality	17	23	22	26	24	19	17	16
Air pollution	38	20	19	23	30	26	17	11
Traffic/Transportation	--	7	4	--	--	4	11	11
Growth/Population growth	8	16	29	12	12	10	6	6
Fuel Shortage/Gas Prices	--	--	--	--	--	2	4	4
Deforestation	5	3	4	5	3	5	3	4
Protection of Puget Sound	--	--	--	--	--	--	--	2
Salmon	9	5	3	2	4	2	1	1
Aquifer contamination/depletion	--	--	--	--	--	--	--	1
Toxic waste	2	2	3	1	2	1	1	1
None/Other/DK/Refused	17	19	10	16	19	22	21	22

- Among those mentioning Water Pollution/Quality as the top environmental issue, demographic differences exist. These demographic differences are independent of views on global warming.
  - Younger respondents are more worried about Water Pollution/Quality than older respondents.
  - Males are more worried than females.
  - Residents who have children are more concerned than those who do not.
  - East King County is more concerned than other parts of the county.



## SALMON & BULL TROUT

Since 2001, virtually all residents have agreed that water quality directly affects salmon and have consistently viewed the salmon population as at moderate risk. Most King County residents (67%) are aware that the county provides salmon and habitat protection; however, residents' evaluation of that protection is correlated with their awareness of it. As a result, improving the County's job performance is partially a function of effective education, although even among those residents who are aware of the County's services, nearly half (49%) still say the County is doing too little to bring salmon and bull trout back from endangerment.



**Q23.** On a scale of 1 to 7, where 1 means not at all at risk and 7 means extremely at risk, how at risk do you think salmon populations are in our region?

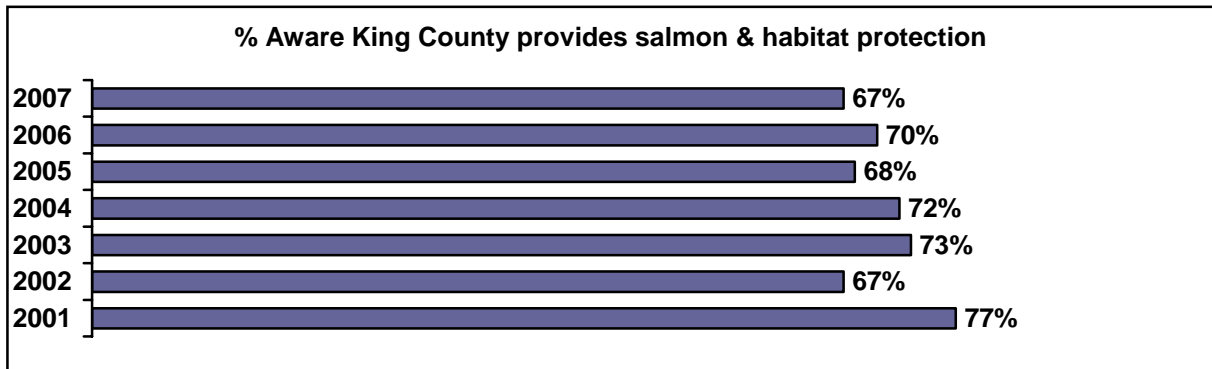
Rank	2001	2002	2003	2004	2005	2006	2007
7- Extremely at risk	20	22	23	19	18	27	19
6	7	17	16	11	12	16	17
5	26	24	26	25	33	23	24
4	18	17	17	15	15	12	16
3	7	6	10	15	10	9	13
2	3	3	3	3	3	4	4
1- Not at all at risk	5	4	3	3	3	2	4
(Don't Know)	4	7	2	7	5	6	3
<b>MEAN</b>	4.92	5.11	5.03	4.78	4.92	5.17	4.86

- The mean score rating how at risk salmon populations in the region are has declined since last year. This comes mostly from a change in those rating

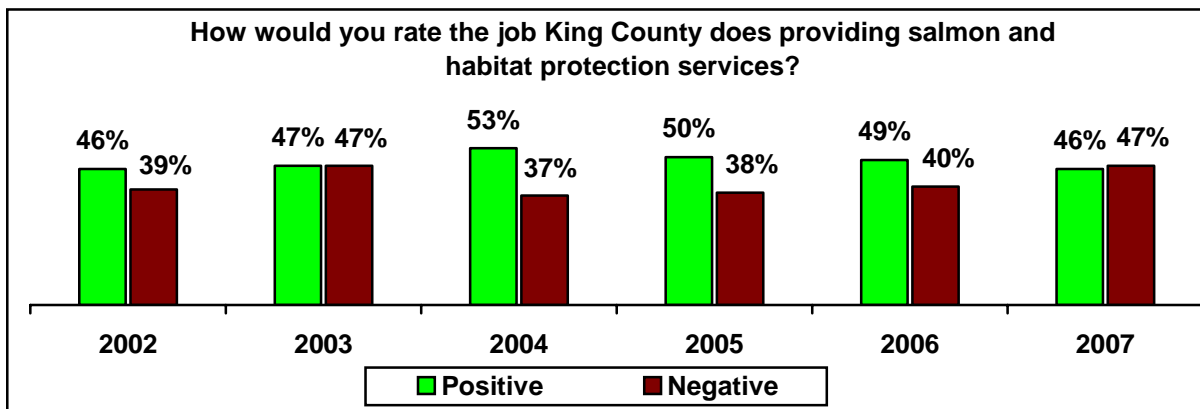


salmon populations as “extremely” at risk in 2006 (27%) vs. those giving the same rating in 2007 (19%)—an 8 point difference.

- Despite the mean score’s decline since last year, the score has hovered around a “5” rating since 2001. Within this bigger picture, King County has consistently viewed the salmon population as at moderate risk.
- Once again, most King County residents (67%) are aware that the county provides salmon and habitat protection.



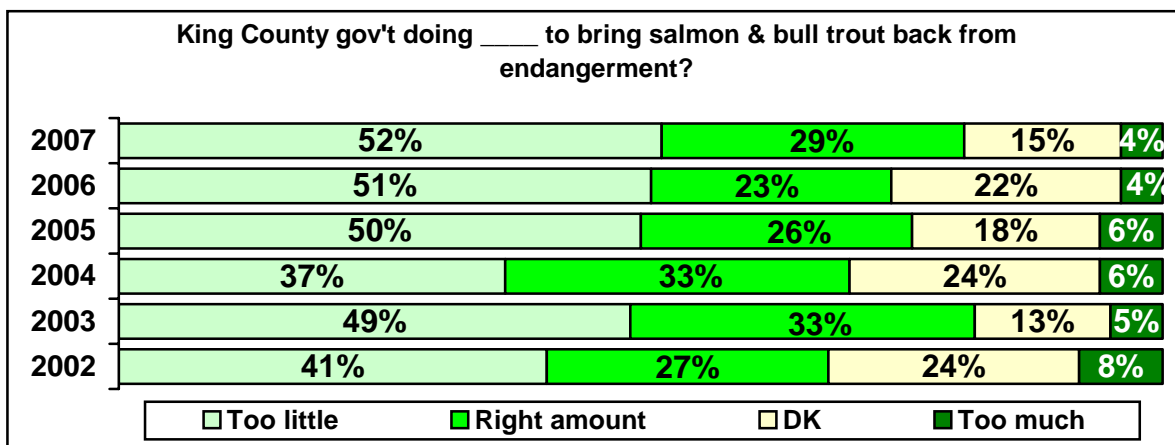
- King County experienced an increase of 7 points in the percentage of people rating salmon and habitat protection services as negative (only fair/poor).



- Nonetheless, this job rating is highly correlated with whether respondents are aware the County provides these services in the first place. That is, among respondents who are NOT aware King County provides these services, 68% give the County a negative job rating, whereas among those who ARE aware the County provides these services, only 36% give a negative job rating.
- Demographically, the groups most unaware of these services are renters (40%),

males <50 years old (40%), those in south King County (39%), those in Seattle (37%), and females 50+ years old (37%).

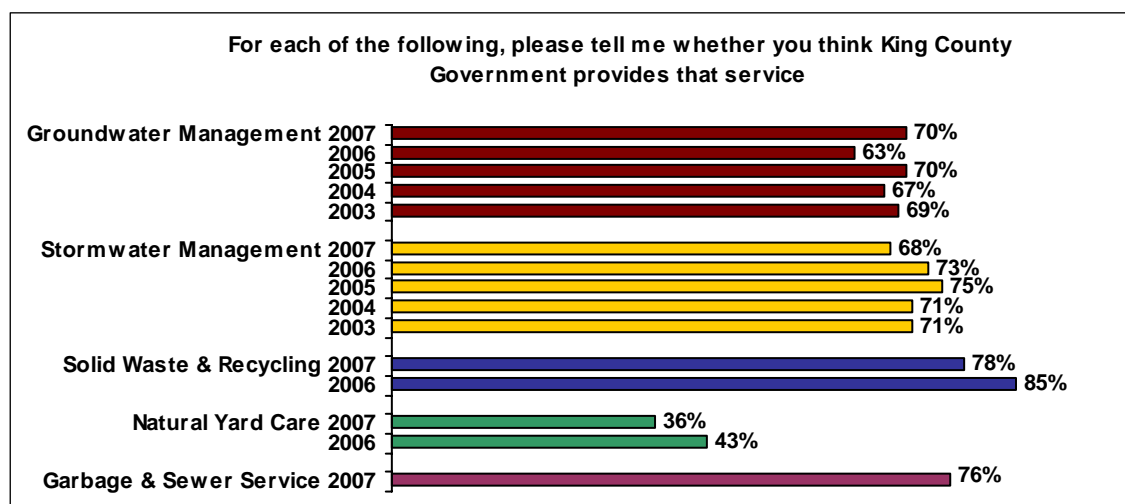
- Of the 67% of respondents who ARE aware that King County provides salmon and habitat protection services, 60% give King County a positive job rating for these services.
- As in 2006, half (52%) of residents think County government is not doing enough to bring salmon and bull trout back from endangerment. However, the County experienced a 6-point increase in the percentage of residents saying that the County is doing the right amount.



- Similar to the job rating given for County services, whether a resident believes the County is doing too little, the right amount, or too much is correlated to their awareness of the County's services to begin with. Residents who are aware of the County's services are more likely to say the County is doing the right amount (33%) compared to those who are unaware (20%).
- However, even though there is some correlation between awareness and perceived effort, room for improvement exists even among those residents who are aware. Nearly half (49%) of those who are aware of the County's services still say the County is doing too little.
- Demographically, residents within Seattle (60%) and females (58%) are the most likely groups to say that King County is doing too little.

## COUNTY SERVICES

A majority of residents are aware of most County water quality services, but only a quarter say they have seen or heard something recently about the County's efforts. (The top mention being the new treatment facility.) In addition, the County experienced an increase in negative ratings for stormwater and groundwater management—a possible result of last fall's flooding.



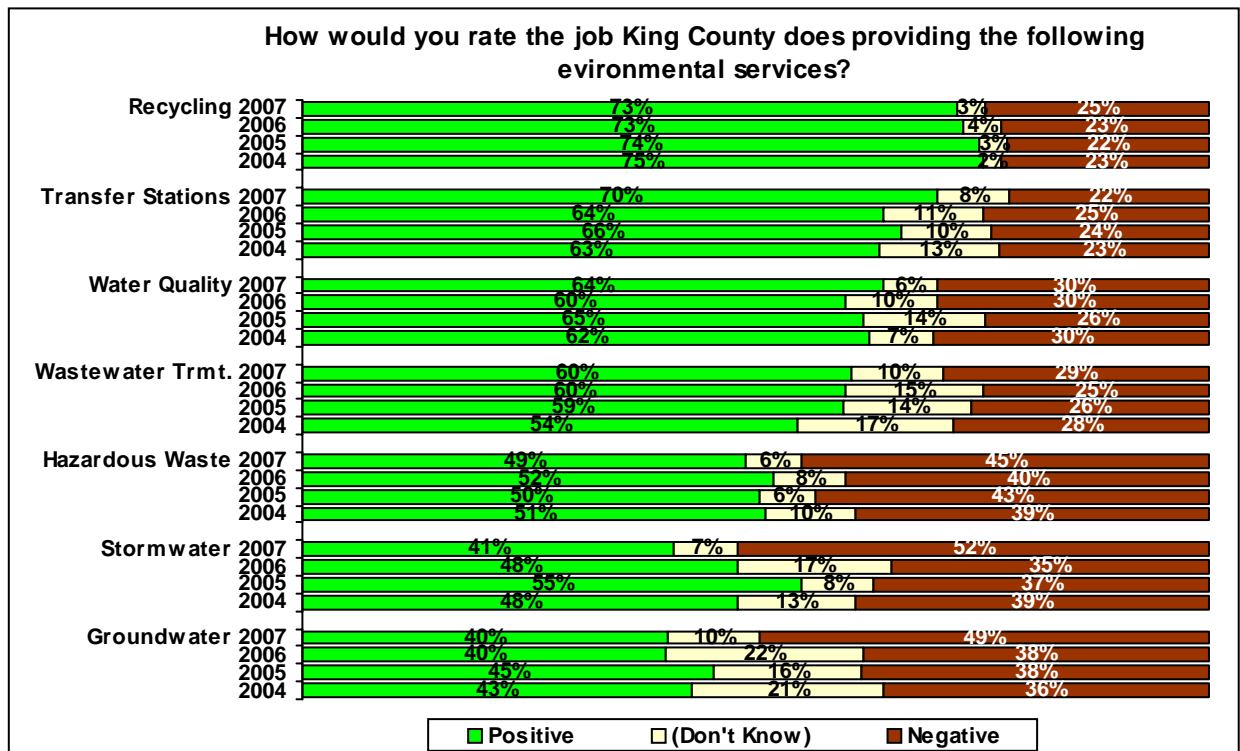
- Despite the ups and downs from year to year, a majority of residents are aware that the County provides most of the services tested. Only natural yard care registers below 50% awareness (36%)—a 7-point decline from 2006. Natural yard care does not have a large budget, which limits the ability to perform outreach to increase public awareness.
- Demographically, the most likely groups to be unaware of the County's natural yard care service are males 50+ years old (71%), those in south and east King County (70%), and males <50 years old (65%).

- Almost identical to 2006, only a quarter (24%) of County residents say they have seen or heard something about King County's efforts to protect water quality, the top item being construction of the new treatment facility.

(If heard something) What have you seen or heard?

Construction of a new sewer system facility	18
Issues on water protection/keeping it clean	16
Flood control efforts/Flood damage/Stormwater	14
Renovation/Conservation of creeks/rivers/Pug. Sd.	9
Using reclaimed water/Wastewater treatment	5
Salmon recovery efforts/Signs to protect salmon	4
Environmental protection efforts	4
Other	6
Can't Remember/Don't Know/Refused	24

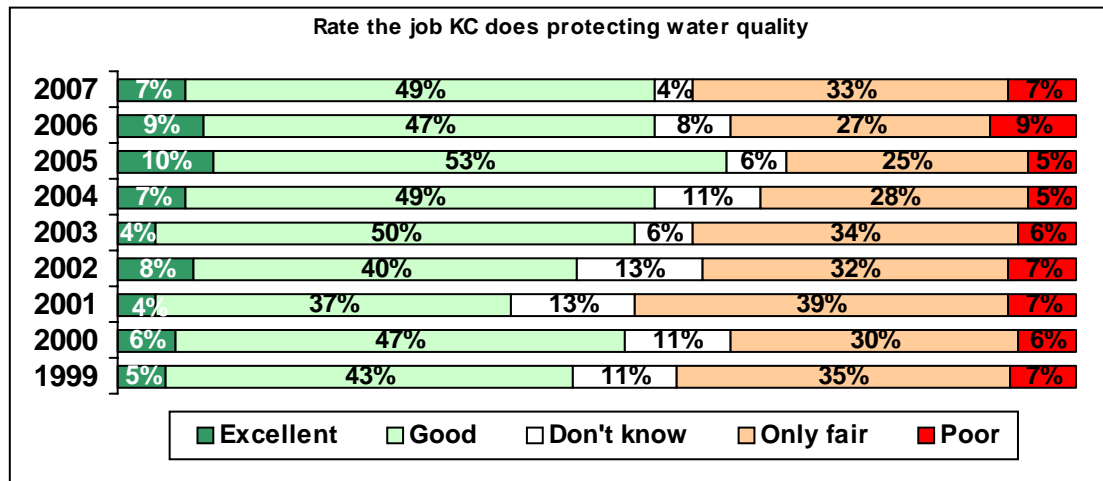
- When rating the County's performance of various services, Recycling continues to be the highest-rated service (73% positive). However, solid waste transfer stations (70% positive), water quality (64% positive), and wastewater treatment (60% positive) all receive solid majorities giving a positive rating.
- Solid waste transfer stations improved their positive rating from 2006, receiving a 6-point increase.



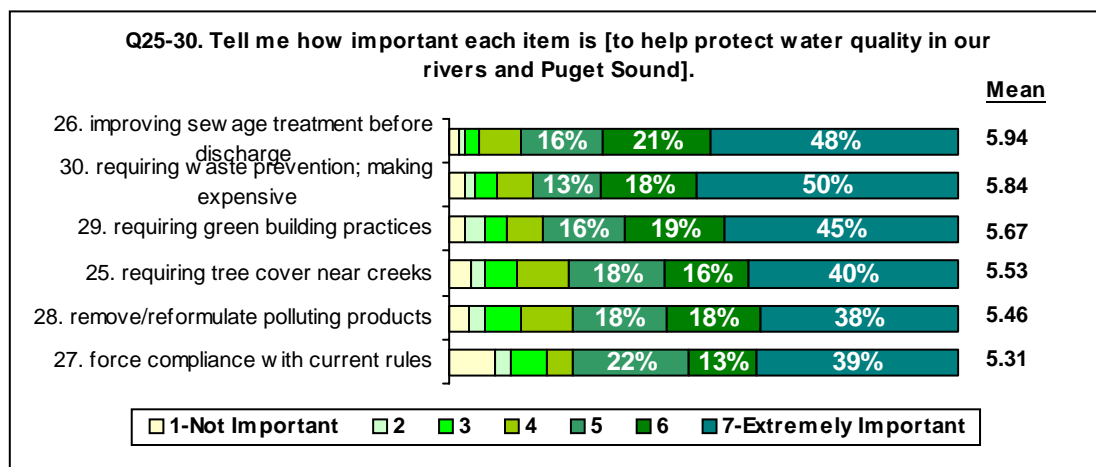
- Water quality ratings rebounded some from their dip in 2006. This year the positive rating is 64%, which is in line with 2005. However, in the bigger picture, even though the positive rating rebounded this year from a dip in 2006, for the four years of the survey, results are basically within the margin of error and can be said to have shown little change.
- Hazardous Waste Services, Stormwater Management, and Groundwater Management only have a minority of residents giving them a positive rating. They have consistently been the three lowest-rated services each year of the survey.
- In fact, Stormwater and Groundwater Management experienced significant increases in their negative ratings. Stormwater management went from 32% negative in 2006 to 52% negative in 2007—a 17-point shift. Groundwater management went from 38% negative in 2006 to 49% negative in 2007—an 11-point shift. These shifts might be a result of the major floods and resulting damage that occurred in fall of 2007.
- Demographically, the groups most likely to give a negative rating for Stormwater management are males 50+ years old (62%), those in east King County (56%), and residents without children (54%). Groundwater management is similar. The most likely groups to give a negative rating here are residents 50+ years old (54%), those in east King County (51%), and those without children (51%).

## WATER QUALITY

Residents' ratings for the job King County does protecting water quality are similar to 2006. When asked how important a variety of items were for protecting water quality, improving treatment of sewage before it is discharged was the top answer.



- Previous surveys asked residents in an open-ended question how the county could improve its efforts to protect water quality. The top response was consistently “education/increase awareness.” In addition, “Don’t Know” was often a significant proportion of the answer. In the 2007 survey, respondents were given several options and asked to rate the importance of each. Improving sewage treatment before it is discharged is the top answer overall.



## BIOSOLIDS

There continues to be strong support for the use of biosolids. Using biosolids for restoring land without vegetation continues to be preferred choice among the options tested. And though use of biosolids as compost or topsoil is the least-preferred option, a solid majority (64%) still say they are likely to use biosolids for this purpose.

- In 2005, the introductory question about biosolids was edited for clarity and uniformity of answers. The two version of the question are below:

### 2004 Version

Now I would like to ask you a question about biosolids. The nutrient-rich, organic solids that are recovered from wastewater and then treated are called biosolids. For many years, King County has been safely recycling biosolids as a fertilizer and soil amendment for agricultural and forestry uses and as an ingredient in compost. Of the following, which do you think would be the best use of biosolids and compost to help improve soils, water quality and habitats?

	<u>2004</u>
Continue to use in agriculture and forestry	37
Use for land reclamation and soil improvement projects	28
Make more compost available for home and garden use	10
(All of the above)	13
(None of the above/Don't Know)	12

### 2005, 2006, and 2007 Version

Now I would like to ask you a few questions about biosolids. In our area, storm water and sewer water from homes is cleaned at treatment plants. During the process, nutrient-rich, organic solids are recovered and treated to make a product called biosolids. For many years, King County has been safely recycling biosolids. Of the following, which do you think would be the best use of biosolids?

	<u>2005</u>	<u>2006</u>	<u>2007</u>
Use for restoring land without vegetation, such as gravel pits	26	34	32
Use in agriculture and forestry	35	26	30
Use in compost or topsoil for landscaping and home gardens	20	19	23
(All of the above)	9	8	6
(None of the above/Don't Know)	8	12	10

- There is solid support for the use of biosolids—only 10% said “None of the Above” or “Don’t Know.” Use of biosolids for restoring land without vegetation continues to be the top answer.
- In 2005, a question about likeliness to purchase a biosolids product was also changed. The two versions of the question are shown below:

### 2004 Version

Using a scale of very likely, somewhat likely, not that likely and not at all likely, if a biosolids soil mix or compost was available in bags, for a competitive price at a local garden center, how likely would you be to buy and use it?

Very likely	28	
Somewhat likely	27	=> <b>55</b>
Not that likely	18	=> <b>40</b>
Not at all likely	22	
(Don’t know)	4	

- The new question language in 2005 more directly addressed landscaping and home garden use. Even though each year the use of biosolids as compost or topsoil for landscaping or a home garden has been the least popular option among those tested, we see that for 2007 a solid majority of residents are still willing to use biosolids for such a purpose.

### 2005, 2006, and 2007 Version

Some biosolids are composted or mixed with other materials to create products for landscaping and home gardens. Using a scale of very likely, somewhat likely, not that likely and not at all likely, how likely are you to use compost or topsoil containing biosolids in your landscaping or home garden?

	<u>2005</u>	<u>2006</u>	<u>2007</u>
Very likely	26	24	27
Somewhat likely	34 => <b>60</b>	28 => <b>52</b>	37 => <b>64</b>
Not that likely	14 => <b>36</b>	12 => <b>42</b>	13 => <b>33</b>
Not at all likely	22	30	20
(Don’t know)	3	6	3

- Willingness to use biosolids for compost and topsoil has rebounded from its 2006 dip, and it is now at an all-time high of 64%. This lends credence to the idea that the dip in 2006 was due to the survey’s fielding during a national e-coli outbreak.



## RECLAIMED WATER

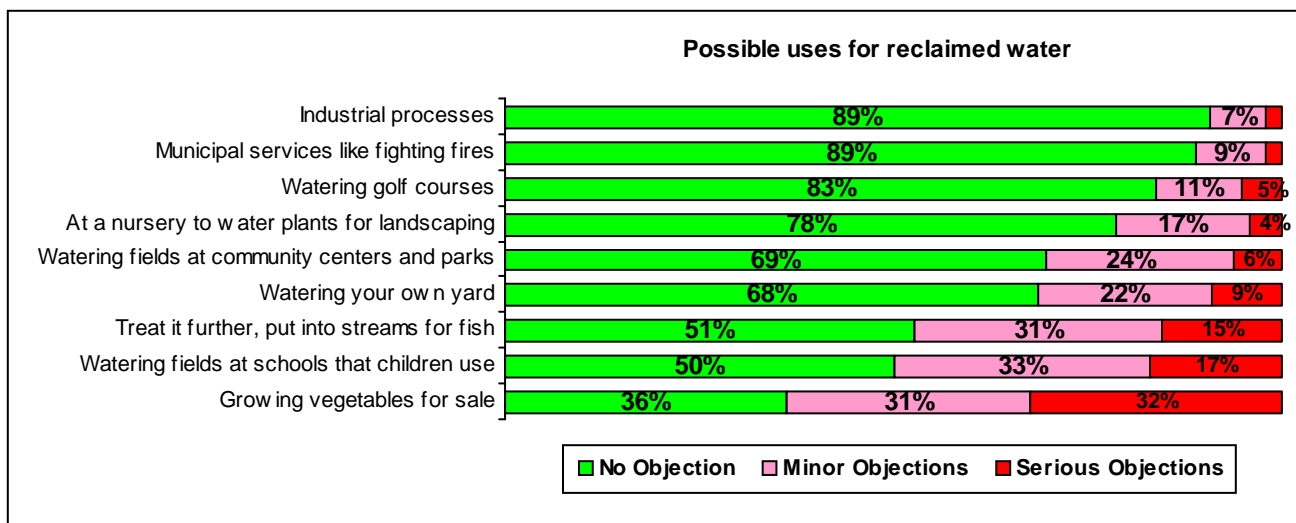
County residents continue to overwhelmingly support reusing as much wastewater as possible, with few objections for its use in industry, municipal services, or watering adult-use fields and landscaping. There is some concern about use at school fields that children use. A majority say they would be more likely to patronize a business or purchase a product if reclaimed water had been used. And a majority (67%) are willing to pay an extra dollar each month to help build a reclaimed water distribution system.

- As in previous years, there is strong support among residents for King County using as much reclaimed water as possible.

Changing subjects, I'd like to ask you about reclaimed water. King County collects wastewater from sewers. Some of this water will soon be sent to a new treatment plant that has the ability to treat this water to near drinking water quality. This water is called reclaimed water. Although it is not suitable for drinking, reclaimed water can be used for a variety of purposes such as irrigation and industry. In general, would you like to see King County reuse as much of this water as possible, or should King County not make an effort to reuse this water? (IF UNDECIDED/DOESN'T MATTER) Well, do you lean towards reusing as much as possible or towards not making an effort to reuse this water?

	2005	2006	2007
Reuse as much of this water as possible	79	81	79
(Lean reuse as much as possible)	3 => <b>82</b>	1 => <b>82</b>	0 => <b>79</b>
Not make an effort to reuse this water	11 => <b>12</b>	11 => <b>23</b>	16 => <b>17</b>
(Lean not make an effort to reuse this water)	1	1	1
(Undecided/Doesn't Matter)	6	6	3

- Residents were then asked a series of questions about specific potential uses for reclaimed water to help identify potential markets for its use.



- Similar to the past two years, there are a wide variety of uses for reclaimed water that a strong majority of residents (at least 68%) have no concerns with. As mentioned, these are for its use in industry, municipal services, and watering adult-use fields and landscaping.
- Residents start to have significant objections once use extends to options that might directly impact wildlife, children, or their own food sources. Putting reclaimed water into streams and watering recreational fields used by children both garner objections from close to half of all residents. Use of reclaimed water for growing vegetables garnered the highest level of objection (63%).
- As in previous years, women are more likely than men to object to the various uses for reclaimed water. But while more women have objections—and more serious objections—to all uses, the difference is not enough to alter the overall trends discussed above.

Do you think you would be more likely or less likely to use a business or buy a product if they used reclaimed water? (IF MORE LIKELY) Would that be much more or somewhat more likely? (IF LESS LIKELY) Would that be much less or somewhat less likely?

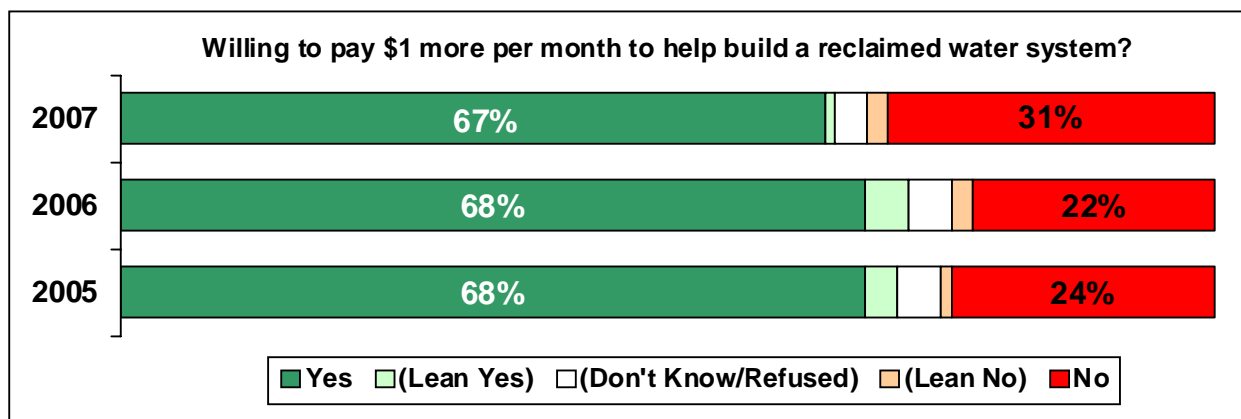
	<u>2006</u>	<u>2006</u>	<u>2007</u>
Much More Likely	23	26	17
Somewhat More Likely	38=> <b>61</b>	33=> <b>59</b>	42=> <b>59</b>
Somewhat Less Likely	9=> <b>16</b>	7=> <b>16</b>	12=> <b>20</b>
Much Less Likely	7	9	8
(Undecided/Don't Know)	22	25	21

- Similar to previous years, 59% of residents would be more likely to use a business or buy a product if that business or product used reclaimed water. However, a sizable chunk of residents (21%) don't know how that factor would influence their purchasing.
- Demographically, the group least likely to make a purchase due to reclaimed water use is females <50 years old, which dovetails with the previous finding that females in general are more likely than males to have objections to uses of reclaimed water.

- When asked to identify the benefits of reclaimed water, residents overwhelmingly cited its positive environmental impacts, such as conserving and recycling water resources.

What do you think are the benefits, if any, of using reclaimed water?	
	<b>2007</b>
Conservation / Saves water	24
Protects/Recycles water resources	20
Reduces water shortage	17
Helps the environment	15
Good alternative/Water can be reused for other purposes	9
Saves money/Cuts down on water bills/Less taxes for water	6
Other	6
None	1
Don't Know/Refused	1

- As in previous years, when asked whether they would be willing to pay \$1 more on their sewer bill each month to help build a reclaimed water system, a solid majority say yes (67%). However, this year the percent of residents saying no increased 7 points, from 24% to 31%.



- The least likely to support paying the extra dollar are males 50+ years old (39% no) and south King county residents (38% no).

## SEWAGE AND STORMWATER

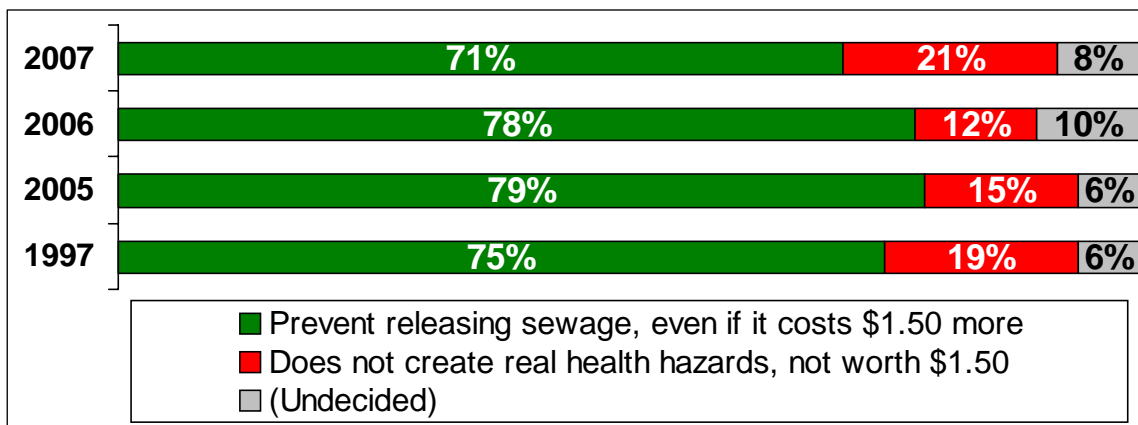
**As in previous years, a strong majority of residents (71%) are willing to pay \$1.50 per month on their sewer bill to reduce sewage/stormwater releases into Puget Sound. But support for \$3/month barely reaches above half (54%).**

In some areas of King county, sewage and stormwater travel through the same pipes. During heavy rains, this combination of sewage and stormwater can overflow into Puget Sound and other waterways because sewer pipes are full. This can happen up to 100 times per year, during our heavier storms. We will soon pay about a dollar and fifty cents more per month on our sewer bills to reduce the occurrence of these releases, but this will not eliminate the problem. Which of the following comes closest to your opinion?

*We should prevent releasing this diluted sewage into Puget Sound rivers and lakes during storms, even if it costs \$1.50 more per month on our sewer rates*

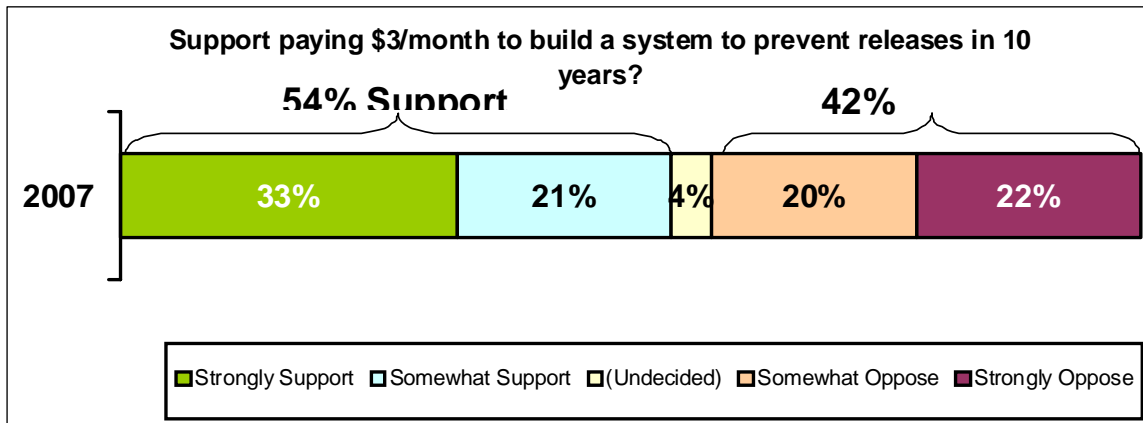
**OR**

*Some people believe releasing some diluted sewage into Puget Sound rivers and lakes during storms does not create any real health hazards for people or wildlife. It is not worth \$1.50 more per month on our sewer rates to prevent it.*



- And also similar to 2006, Seattle (75% for \$1.50) and south King County (77% for \$1.50) residents are noticeably more supportive of the charge than east King County residents (63% for \$1.50).
- There is a significant gender difference as well, with 78% of women willing to pay vs. only 65% of men willing to pay.

- Though 71% of voters are willing to pay \$1.50 more per month to prevent stormwater and sewage overflows into Puget Sound, when asked whether they'd be willing to pay \$3 more per month (in order to build the system in 10 years as opposed to 20), support drops to 54%.



- Support is again strongest among women (57% support) and residents of Seattle (62% support).
- Raising the fee to \$3/month significantly erodes support among south King County residents. Support drops from 77% at \$1.50/month to 49% at \$3/month.

## APPENDIX A: DEMOGRAPHICS

	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>
<b>Gender</b>									
Male	48	48	48	49	50	49	49	50	50
Female	52	52	52	51	50	51	51	50	50
<b>Homeowner</b>									
Own/buying	72	66	72	69	72	77	68	71	72
Rent	28	32	27	29	27	21	28	28	28
(DK/Refused)	2	2	1	2	1	1	4	1	0
<b>Children living at home</b>									
Yes	31	36	32	33	27	33	38	34	35
No/(Refused)	69	64	68	67	73	67	62	66	65
<b>Age</b>									
18-24	8	10	8	8	7	6	8	8	8
25-29	6	9	10	9	7	6	9	9	8
30-34	9	10	8	9	10	10	11	11	12
35-39	10	11	8	8	10	11	9	9	8
40-44	13	12	12	12	8	11	12	13	13
45-49	14	10	9	10	12	11	10	8	7
50-54	8	12	11	10	11	11	12	10	11
55-59	7	6	7	6	9	9	7	11	12
60-64	5	6	5	3	8	7	4	6	6
65+	18	13	18	21	16	15	15	13	14
(Refused)	3	3	3	4	2	1	2	1	1