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# **Water Pollution in Puget Sound: The View from the Back Yard**

**A COMPILATION OF PUBLIC OPINION RESEARCH  
2004-2009**

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***ELWAY RESEARCH, INC.***



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### **INTRODUCTION**

This compilation includes the results of 10 different studies conducted over the past three years by Elway Research, and one conducted for the City of Everett by Dethman & Associates. Each focused on some aspect of “non-point source” water pollution along Puget Sound.

The scope has varied from region-wide surveys to specific neighborhoods and categories of people, such as dog owners. The purpose has varied as well, from tracking “big picture” variables like the perceived health of Puget Sound, to before-and-after measurements of the effects of test marketing efforts.

The methodology has included random sample surveys (both telephone and mail), focus groups, interactive polling forums, and executive interviews.

The content has covered such issues as: assessment of the health of Puget Sound, sources of pollution, knowledge of storm water treatment, support for potential solutions, willingness to take personal action and to support communal solutions, reactions to potential marketing/education messages, and evaluations of actual communication campaigns. The studies included measures of personal behavior with regard to vehicle maintenance, yard care, pet waste, and septic systems, among others.

By bringing this research together into a single summary, this document attempts to reveal some common themes which underlie these findings and point to areas in which further research would be productive.

This report is organized in line with a behavioral model which suggests that people will act in accordance with their mental picture of a situation. That is, people will be willing to take action if that action is believed by them to be connected to a viable solution to a problem that they perceive to be real. The key is to look at these elements – problem, solution, action – from the point of view of the citizen. They are the ones who will be called upon to act. How do they see the situation?

Accordingly, the first section of this report looks at available data about area resident’s perception of the problem of Puget Sound pollution. One’s definition of a problem or situation can include an assessment of the nature of the problem, its causes and its effects if left unaddressed. There are data at three levels: Puget Sound, local neighborhood and yard.

The second section looks at current behavior. All of the jurisdictions represented in this summary are focusing on some combination of four categories of behavior: yard

maintenance, vehicle maintenance, pet waste disposal and septic systems. The behavior measurements therefore focus in those same categories.

The final section looks at the connections people make (or not) between their personal practices and behaviors and the health of Puget Sound. It looks at the willingness to change behavior as well as motivations and barriers to take a desired action.

Several jurisdictions have undertaken test marketing efforts that have taken place to examine people's willingness to change behavior. Some of their results are included here.

The data are not complete on any of these questions. Each research project had its own set of objectives, driven by the multiple jurisdictions participating. The jurisdictions were at differing stages of developing strategies for communicating with their residents on these issues.

Taken together, however, these studies present a useful outline of Puget Sound residents' understanding of the situation, their current behavior and indications of what will be required to effect wide scale behavior change.

## Studies Included In This Summary

The studies cited are detailed below. All but the Everett survey (#10) were conducted by Elway Research. The Everett survey was conducted by Dethman & Associates and AbtSRBI. The studies were:

1. A marketing impact study for Tacoma Environmental Services in 2004/2005. In this study, residents of a test neighborhood were surveyed by mail before and after being exposed to education efforts on how their car-care practices could impact street water runoff. A control group, which was purposely not exposed to the marketing campaign, was surveyed twice as well.
2. Four focus groups on pet waste (two with pet owners and two with veterinary clinic staff members) in Snohomish County, December, 2005.
3. A telephone survey of 119 recipients of Snohomish County test marketing designed to increase awareness of problems associated with pet waste, October/November, 2007.
4. Executive interviews with 18 veterinary clinic staff members in Snohomish County, February, 2008, again concerning pet waste.
5. Eight focus groups as a combined project for the cities of Bellevue, Redmond, Shoreline and Kirkland (two focus groups in each community), June and July, 2008. These discussions tested concepts for potential marketing materials dealing with various aspects of storm water pollution.
6. Interactive polling forum with 105 residents of Bellevue, Redmond, Shoreline and Kirkland, December, 2008. This was a follow-up on storm water marketing visuals and language. These projects are referred to in this report as "BRISK," for the four sponsoring cities.
7. Telephone survey of 1120 residents of the Kitsap Peninsula in November, 2008, exploring public awareness, attitudes and behavior with regard to various aspects of surface water pollution. The survey included over-samples in the cities of Bainbridge Island, Bremerton, Gig Harbor, Port Orchard, Poulsbo, plus Navy Housing.
8. Telephone survey of 400 Snohomish County residents who have septic systems on their property, conducted in December, 2008.
9. Two *Elway Poll* telephone surveys in December, 2006 and December, 2008, each interviewing 400 residents of the 12 counties bordering Puget Sound.
10. Telephone survey of 400 Everett residents, conducted in November & December, 2008.
11. Telephone survey of 1177 Pierce County residents, including over-samples in the cities of Fife, Fircrest, Milton, Puyallup, Sumner and Tacoma. Conducted in February, 2009, the survey explored public awareness, attitudes and behavior with regard to various aspects of surface water pollution.

## PERCEPTION OF SITUATION : PUGET SOUND

The water pollution situation has been analyzed at two levels: The Puget Sound and local waters. People recognized that local waters end up in the Sound, but they differentiate between the two in their assessment of pollution problems.

Lack of urgency about Puget Sound pollution represents the first barrier to behavioral changes. The region's residents have been generally divided on the question of the overall health of Puget Sound. Although few thought it "excellent," more than half believed that the problems were exaggerated or were only "potential" problems in the future.

They were also divided in their understanding of the storm water system. Few understood the terminology used in the industry.

While there is recognition of the contribution of non-point source pollution (although citizens do not call it that), there is a tendency to point to industrial, marine, agricultural and other business sources as the most significant contributors to Puget Sound pollution.

KEY FINDING	DATA
<p>◆ <b>Just over half of Puget Sound residents have rated the health of the Sound as "fairly good" or better.</b></p> <ul style="list-style-type: none"> <li>• They have seldom said "excellent," however.</li> </ul>	<ul style="list-style-type: none"> <li>• 56% in the region-wide Elway Poll rated the health of the Sound as "excellent" or "Fairly Good" in 2008 (up slightly from 51% in 2006.)</li> <li>• In Pierce County, the proportion was 57%; (50% "fairly good" and 7% "excellent.")</li> </ul>
<p>◆ <b>Reports of Puget Sound's failing health were taken seriously, but not urgently.</b></p>	<ul style="list-style-type: none"> <li>• 41% of Sound residents said in the Elway Poll that recent studies are a source of "genuine alarm;" while 43% considered such reports "early warning of potential problems in the future."</li> </ul>
<p>◆ <b>'Local surface waters' and fresh water are rated similarly.</b></p>	<ul style="list-style-type: none"> <li>• In Pierce County, 60% rated the "lakes, streams and rivers" as fairly good or excellent.</li> <li>• In Everett, 40% rated "local surface water quality" as "good" (32%) or "excellent" (7%).</li> </ul>
<p>◆ <b>There is confusion about the terms "storm water," "runoff," "surface water," "watershed," and especially, "non-point source pollution."</b></p>	<ul style="list-style-type: none"> <li>• These results come mostly from the BRSK focus groups and forum.</li> <li>• In these groups, even "water" was confused with drinking water. Similarly "drain" had to be clarified as <u>storm</u> drain.</li> <li>• In Everett, only 33% were "very clear" about the meaning of the term "surface water" (41% said "somewhat.")</li> </ul>

<p>◆ <b>When comparing pollution sources (not just storm water), residents have been more likely to blame Industrial waste and ship/pleasure boat discharge/ leakage than road and neighborhood runoff.</b></p>	<p>These were the storm water pollution factors chosen most often as "significant" in the Kitsap and Pierce Surveys (followed by "leaking septic systems" in Pierce.</p> <p>This tendency was confirmed in BRSK interactive polling.</p>
<p>◆ <b>Even when asked specifically about storm water pollution, many point the finger elsewhere.</b></p>	<ul style="list-style-type: none"> <li>• In Everett, 62% said “storm drain water impacts surface water quality a lot,” and 27% said “affects somewhat.”</li> <li>• Everett respondents were more likely to blame storm water pollution on businesses (31%) than households (18%); 41% said that the two contributed equally.</li> </ul>

**PERCEPTION OF SITUATION : NEIGHBORHOOD**

KEY FINDING	DATA
<p>◆ <b>Neighborhood/ individual actions have been seen as major contributors to water pollution.</b></p> <ul style="list-style-type: none"> <li>• When tested specifically, and not in relation to “industrial pollution” and other “usual suspects.”</li> </ul>	<ul style="list-style-type: none"> <li>• 6 in 10 regional respondents recognized that their neighborhood may contribute to Puget Sound pollution.</li> <li>• 7 in 10 Everett respondents said that “everyday actions of individuals” have a great effect on the health of surface water.</li> </ul>
<p>◆ <b>About half of respondents around the Sound believed that “stormwater runoff is untreated.”</b></p> <p>◆ <b>Perception that stormwater is untreated tends to be higher in unincorporated/rural areas.</b></p>	<ul style="list-style-type: none"> <li>• This was consistent across the Kitsap Peninsula and Pierce County surveys (54% and 50% said that it was not treated), and the Elway Poll of all Puget Sound (56%).</li> <li>• In the BRSK forum, half said that storm drain systems did not remove pollutants, and 16% said "probably not."</li> <li>• In Kitsap: 58% of those in unincorporated areas said it was not treated or didn't know, vs. 46% in the incorporated areas.</li> <li>• In Pierce County, the split was somewhat less pronounced (55%/47%).</li> <li>• In the Elway Poll, “not treated” included: 71% who described themselves as rural; 62% of self-described suburbanites; 58% of urbanites; and 43% of those who lived in small towns.</li> </ul>

## POLLUTION CAUSES / CONTRIBUTORS

<p>◆ <b>Highest-rated storm system pollution sources in neighborhoods have been:</b></p> <ul style="list-style-type: none"> <li>• <b>Household hazardous waste,</b></li> <li>• <b>Yard and garden chemicals,</b></li> <li>• <b>Vehicle oil, and</b></li> <li>• <b>Leaking septic systems.</b></li> </ul> <p>* Kitsap and Pierce data differ probably because of the placement order of the question in the survey, but the relative importance of the factors remained the same.</p>	<ul style="list-style-type: none"> <li>• More than half (59% to 84%) of those in the region-wide Elway Poll called each of these “significant,” when asked about neighborhood sources of water pollution specifically.</li> <li>• In county surveys, these were the factors termed “significant”:              HH Hazardous Waste = 68% in Kitsap; 37% in Pierce.              Leaking Septic Systems = 66% &amp; 35%.              Yard pesticides/fertilizers = 63% &amp; 43%.              Vehicle oil leaks = 60% &amp; 43%.</li> <li>• In the Everett study, the following were said to “contribute a lot” to storm water pollution:              73% for HH Waste              71% Car Oil Leaks              67% Herbicides and Pesticides</li> </ul>
<p><b>PET WASTE</b></p> <p>◆ <b>Dog owners</b></p> <ul style="list-style-type: none"> <li>• <b>Are often unaware of the health dangers of pet waste.</b></li> <li>• <b>Are at times unsure of the proper disposal methods.</b></li> <li>• <b>The lack of knowledge about pet waste has been confirmed by multiple studies specifically on the topic in Snohomish County, as well as in widespread surveys.</b></li> </ul> <p>◆ <b>Veterinary clinic employees may be only slightly more informed than pet owners.</b></p> <p>◆ <b>Veterinary employees and vets do not routinely discuss pet waste disposal.</b></p>	<ul style="list-style-type: none"> <li>• Some statements from Snohomish pet owner focus groups were:  <i>“I really didn’t know that dog poop had the bad of stuff in it at all...I didn’t know the stuff lived.”</i>  <i>“I always wondered what you’re actually supposed to do with dog waste.”</i></li> <li>• Only 1 in 3 Kitsap dog owners thought that “pet waste left on the ground” was a significant contributor to local water pollution.</li> <li>• In the same study, a minority thought that “putting pet waste in the garbage” was a very effective strategy.</li> <li>• In Snohomish vet and vet technician focus groups, one said:  <i>“I pick up my dog’s and just kind of throw it.”</i></li> <li>• Half of clinics interviewed said that they rarely discussed pet waste disposal with clients, then usually only if a dog was ill.</li> <li>• Only two said they had an "official" recommendation.</li> </ul>

<p><b>SEPTIC SYSTEMS</b></p> <p>◆ <b>Many septic owners acknowledged the general dangers of failing septic systems, but still felt that <u>their</u> own system would not impact water pollution.</b></p>	<ul style="list-style-type: none"> <li>• 9 in 10 in the Snohomish Septic study agreed that failing septic systems can spread disease among humans and harm aquatic life (over half agreed strongly.)</li> <li>• However, 7 in 10 said that "the condition of the septic system on my own property does not really impact local streams and lakes."</li> <li>• 1 in 4 felt that concerns about septic systems were "just scare tactics."</li> </ul>
<p><b>SOAPY WATER</b></p> <p>◆ <b>Soapy car wash water and pet waste left on the ground have been consistently under-recognized as threats to water quality</b></p>	<ul style="list-style-type: none"> <li>• In the Elway Poll, Kitsap and Pierce surveys these were termed significant by fewer than 1/3, and were always the bottom two of a list of possible run-off pollutants.</li> <li>• In the Everett survey 4 in 10 said that each of these "contributed a lot" to surface water pollution, again in the lower half of the list.</li> <li>• In BRSK focus groups, there was disagreement about the danger of soapy car wash water, including the notion that "carwash water hurts the lakes is hogwash, anyway."</li> </ul>

## CURRENT BEHAVIOR: TARGET CATEGORIES

All of the jurisdictions represented in this summary are focusing on some combination of four categories of behavior: yard maintenance, vehicle maintenance, pet waste disposal and septic systems. Accordingly, the behavior section of this summary presents the research findings in those categories.

<p><b>YARD MAINTENANCE</b></p> <ul style="list-style-type: none"> <li>• <b>Most respondents have used some yard chemicals, although few used "a lot."</b></li> <li>◆ <b>Hosing down outdoor impervious surfaces is fairly common.</b></li> <li>◆ <b>However, few use cleaning products on outside surfaces.</b></li> <li>◆ <b>"Environmentally friendly" cleaning products have been well accepted.</b></li> <li>◆ <b>Residents who do their own yard work have tended to use fewer chemicals used on it.</b></li> </ul>	<ul style="list-style-type: none"> <li>• In Pierce County: <ul style="list-style-type: none"> <li>62% used herbicides;</li> <li>56% used chemical fertilizers;</li> <li>39% used pesticides.</li> </ul> </li> <li>• In Kitsap County: <ul style="list-style-type: none"> <li>57% used chemical fertilizers;</li> <li>56% used herbicides;</li> <li>37% used pesticides.</li> </ul> </li> </ul> <p>In Kitsap and Pierce Counties:</p> <ul style="list-style-type: none"> <li>• About a third said that they "hose down" or pressure wash decks, sidewalks, patios and/or driveways.</li> <li>• 48% "hosed" at least some times in Everett (pressure washing not asked.)<sup>1</sup></li> <li>• In the Kitsap Peninsula and Pierce County, very few (3% or fewer) used soap/cleaning products outside.</li> <li>• 3 in 4 in Kitsap said that environmentally friendly cleaning products were a very effective way to protect the environment.</li> <li>• In Pierce County, 23% of those who did their own yard work fell into the index category of "worst offenders"—using "a lot" of multiple chemical products. This compared to 35% of those who hired out at least some of the work.</li> <li>• In Kitsap, wide use of chemical fertilizers was reported by: <ul style="list-style-type: none"> <li>38% who did all their own yard work, vs.</li> <li>48% who hired some, and</li> <li>52% who hired out all their yard care.</li> </ul> </li> </ul>
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<sup>1</sup> The inverse of this question was asked in Everett: "Does your household follow these gardening practices all of the time, most of the time, sometimes, seldom or never --- Sweep walkways and driveways instead of using a hose?" This was one of a series of questions about proper behavior asked near the end of the interview, after exploration of the pollution issues.

<p><b>CAR WASHING</b></p> <p>◆ <b>Many residents washed their own cars, at least some of the time, and may have let soapy water flow into the storm system.</b></p>	<ul style="list-style-type: none"> <li>• The proportion who ever washed their own cars was 2 in 3 on the Kitsap Peninsula, and 2 in 5 in Pierce County.</li> <li>• In Everett, only 26% said that they always use a commercial car wash.</li> <li>• Around 1 in 4 in both Kitsap and Pierce risked letting the runoff get into the storm system (it went “into the storm system” or “down the street.”)</li> </ul>
<p>◆ <b>There is considerable resistance to using commercial car washes.</b></p> <p>◆ <b>There is even more resistance to the idea of washing a car on grass or gravel.</b></p>	<ul style="list-style-type: none"> <li>• Focus group participants said that using a commercial car wash is expensive, the line can take too long, and their car might get damaged.</li> <li>• Others thought it suspicious that a government would be promoting the use of commercial businesses.</li> <li>• “Washing your car on the lawn filters pollutants” was the lowest-rated message for believability in the BRSK forum.</li> </ul> <p>Many focus group participants did not have a place at home that they felt was appropriate. They said that:</p> <ul style="list-style-type: none"> <li>• The car tires would damage plants.</li> <li>• The soapy water would be bad for grass and plants.</li> <li>• Their driveway drains into soil already, and not to a storm drain.</li> <li>• Using biodegradable soap made car washing on pavement not harmful.</li> </ul>
<p>◆ <b>For some key behaviors, younger residents may be more resistant.</b></p>	<ul style="list-style-type: none"> <li>• In the Kitsap and Pierce surveys, respondents under age 35 were more likely to wash their cars at home and change their own vehicle fluids.</li> </ul>

<p><b>HOME OIL CHANGES</b></p> <p>◆ <b>Few people service their own cars, and among those who do, many/most have taken the used fluids to collection sites.</b></p>	<ul style="list-style-type: none"> <li>• In Kitsap, 1/3 changed car fluids sometimes, and half of changers took the fluid to collection sites.</li> <li>• In Pierce, 1/5 said they serviced their own cars, and almost all who did took the fluids to collection sites (88%).</li> <li>• Most risk allowing car fluids to leak into stormwater by: leaving or hosing off oil spills, not checking for leaks, and/or not disposing of used oil and/or anti-freeze properly (2/3 in Kitsap did at least one of those things.)</li> </ul>
<p><b>PET WASTE DISPOSAL</b></p> <p>◆ <b>Dog owners have reported that they are more likely to pick up the waste while on walks than to clean their own yards daily.</b></p> <ul style="list-style-type: none"> <li>• A minority of dog owners do both.</li> <li>• Education efforts have seemed to have made a positive impact.</li> </ul> <p>◆ <b>Most who picked up pet waste put it into the trash, but a consistent minority has thought that it can be composted.</b></p> <ul style="list-style-type: none"> <li>• Education efforts have seemed to have made an impact with this tendency as well.</li> </ul> <p>◆ <b>The barriers to changing this behavior are low; reasons for it are often unclear and people have responded to information.</b></p>	<ul style="list-style-type: none"> <li>• The proportions of dog owners picking up waste have been: 54% on every walk and 47% daily from their yard on the Kitsap Peninsula. 57% and 45% in Pierce County.</li> <li>• In the Snohomish focus groups, dog owners tended to say that they clean up their yards every one to two weeks.</li> <li>• In the Snohomish test marketing phone survey (after being sent information on proper waste disposal), 8 in 10 picked up the waste while on walks, but, still, only 1 in 4 cleaned their yard daily.</li> <li>• When asked in Everett simply if they “clean up pet waste” (with no distinction between walks and in the yard, and no detail as to <i>how or when</i> it is cleaned up), 74% said “always.”</li> <li>• 2/3s in Kitsap (63%) and Pierce (65%) who picked up dog waste bagged it and put it in the trash.</li> <li>• In the Snohomish test area (after education efforts), 84% who picked up dog waste put it in the trash.</li> <li>• In the Pierce study, many who did <i>not</i> put the waste in the trash did not know why (29%), did so out of habit (8%), or didn’t know about the harm (5%).</li> </ul>

**SEPTIC SYSTEM MAINTENANCE****◆ Septic systems owners have seemed fairly knowledgeable about the care of their system:**

- **Almost all knew what to avoid letting down the drain, and they kept their drain fields clear.**
- **However, most would wait for a smell, wet ground, or a back up to "know that they had a problem."**

**◆ Less so about maintenance:**

- **Most did not have their tank pumped on a schedule.**
- **Only half had it pumped every 2-3 years.**

In the Snohomish telephone survey of septic owners:

- 40% would become aware of a problem via back ups,
- 12% by smell, and
- 9% wet ground.

Among the Snohomish septic system owners:

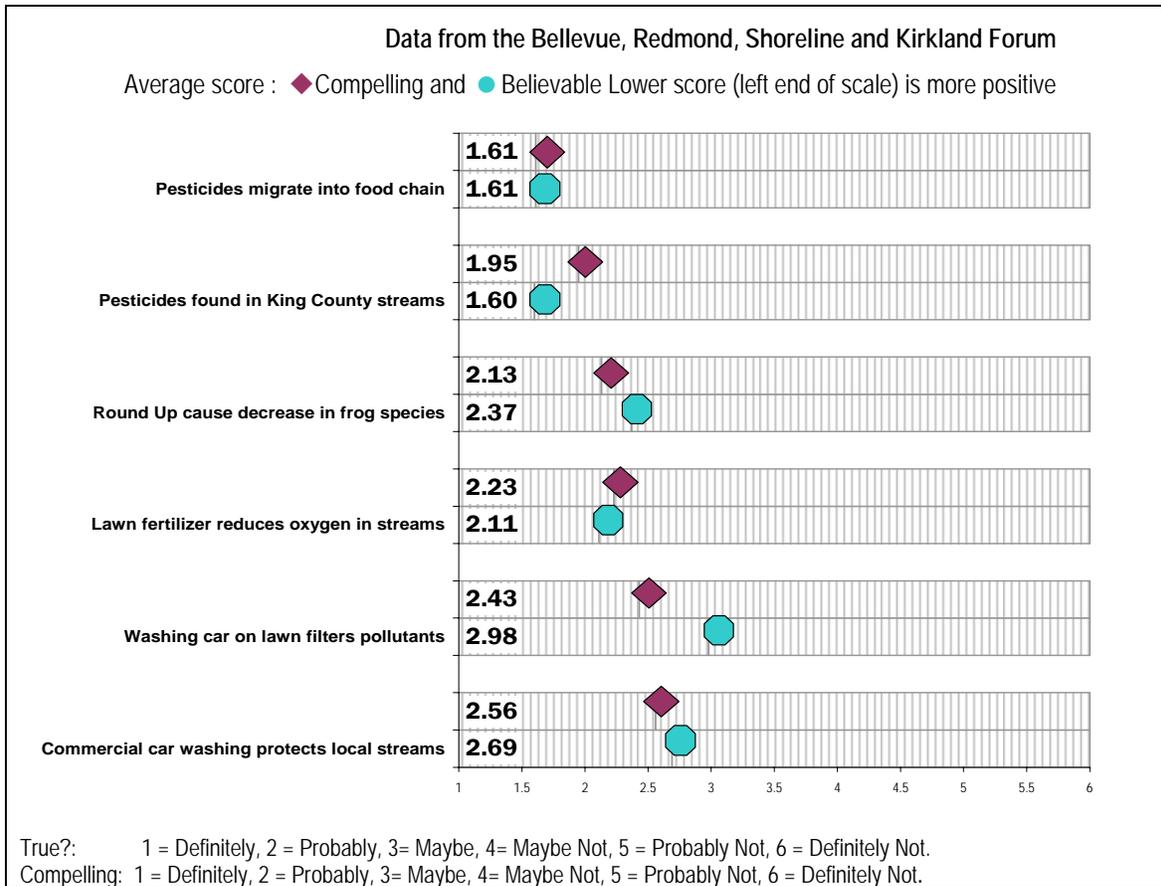
- 44% had a regular pumping schedule.
- 35% pumped every 2-3 years; 19% every 4-5 years; 22% said "never." (Only 2% said that their system was a type that did not need pumping.)

## WILLINGNESS TO ACT / CHANGE BEHAVIOR

For the most part, jurisdictions in the region are in the development stages of communication strategies. Several studies have only asked what type(s) of messages the respondents thought would be most motivating. Others have tested education and marketing strategies, images, slogans and entire campaigns. Although they must be considered tentative, trends are emerging.

KEY FINDING	DATA
<p>◆ <b>Many residents have indicated that they are willing to make changes, at some times with sacrifices.</b></p> <ul style="list-style-type: none"> <li>• <b>A minority are “convinced that there is nothing more that (they) can do.”</b></li> </ul>	<p>In Pierce County:</p> <ul style="list-style-type: none"> <li>• 4 in 5 said that they were willing to make changes – either “with sacrifices” (43%) or “if the changes are fairly easy” (30%).</li> <li>• Only 13% said that “there is not more that I can do” best described their attitude.</li> </ul> <p>In Everett, one of the most “motivating” statements was “if it were convenient and easy.”</p> <p>Also:</p> <ul style="list-style-type: none"> <li>• 53% felt that they <u>could</u> do more to protect surface water quality (46% “somewhat more;” 7% “a lot.”)</li> <li>• 19% said that “they could not do more.”</li> </ul>
<p>◆ <b>Basic information provided motivation.</b></p>	<ul style="list-style-type: none"> <li>• At the BRSK forum, 8 in 10 said that information explaining that (most) storm systems did not remove pollutants would be “compelling.”</li> </ul>
<p>◆ <b>Area residents have claimed that they would rather change their behaviors and privileges than pay for water clean-up.</b></p>	<p>In the Elway Poll, the following were “very willing” to accept these actions to help clean up Puget Sound:</p> <ul style="list-style-type: none"> <li>• 28% "More restrictions on what you can do on your own private property."</li> <li>• 22% "Cut funding to other government programs."</li> <li>• 18% "Pay higher rates for utility bills to help pay the cost."</li> <li>• 18% "Pay higher local taxes."</li> </ul>
<p>◆ <b>When testing actual ad languages, “responsibility” resonated - both personal and shared.</b></p>	<ul style="list-style-type: none"> <li>• Language with “our” and/or “your” was preferred: e.g. “Protect <u>our</u> streams,” not “<u>the</u> streams.”</li> <li>• Visuals of shared surface water (Puget Sound/Lake Washington) were favored over specific neighborhood or forest streams.</li> </ul>

<p>◆ <b>Health and children have been emerging as important motivators.</b></p> <p>◆ <b>Children – the future generations – convey the meaning of the effort to protect local waters.</b></p> <p>◆ <b>These have been merged at times into a successful “family health” message.</b></p>	<ul style="list-style-type: none"> <li>• In the Pierce County survey, respondents choose “Protecting drinking water and food sources for people’s health” 3 to 1 as the “number one reason” for wanting to cut back on water pollution (62% called it “number 1.”)</li> <li>• In Pierce, “future generations” was the second most likely "number 1 reason" for cutting pollution (21%.)</li> <li>• A Snohomish vet said: <i>“The punch factor is going to be your kid is going to be the one who’s tromping around out there in the poop in your yard.”</i></li> <li>• In Everett, 1 of the top 4 similarly rated motivators was “It protects family health” (76% called it “motivating.”)</li> <li>• The single most important reason for septic system maintenance among system owners was “keeping family/pets safe” (39% vs. only 8% who said "protect streams.")</li> </ul>
<p>◆ <b>Images of fish as <u>meals</u> have been more compelling than images of the waters themselves, live fish, wildlife and pollution.</b></p>	<p>An ad with a labeled salmon <u>meal</u> was called “much more alarming than the others...Kind of a wake-up call.”</p> <p><i>“I think the food is the most compelling, because you're putting it in your body..”</i></p> <p><i>“It shows what’s in it for me.”</i></p>
<p>◆ <b>Saving wildlife and recreational opportunities are often the least successful messages.</b></p>	<ul style="list-style-type: none"> <li>• In Everett, one of the least motivating messages was “It protects recreational areas” (61%). (“Protecting the environment, including wildlife” fared better there as a message, with no visuals.)</li> <li>• In the BRSK forum, photos of swimming and live fish were particularly unpopular.</li> </ul>



**◆ Response has been strongest to messages which:**

- Reinforce things people already believe; i.e. anti yard chemical arguments.
- Giving people something that they can do that will actually work to alleviate a problem encourages behavior change (i.e. stop using chemicals.)

In the BRSK forum, the most compelling arguments were:

- “Three common weed & feed pesticides have been found in many King County urban and suburban streams: 2,4-D; MCPP and dicamba.”
- “When Glyphosate (Round Up) gets into water, it was found to cause a 70% decline in frog species and an 86% decline in the total number of tadpoles.”
- “Pesticides can migrate via water into the food chain, and ultimately being consumed by humans & animals in food.” (This last being the most compelling.)

In the Everett survey, 1 of the 4 similarly ranked “motivating statements” was: “You knew it made a difference” (78% said that such would be motivating.)

<p>◆ <b>Short text and taglines have been preferred.</b></p>	<ul style="list-style-type: none"> <li>• In the BRSK work, participants would not tolerate much text in ad samples, although they also wanted the message "clear."</li> <li>• Snohomish pet owners said: <i>"Keep it short... just say 'Trash is okay.'"</i></li> </ul>
<p>◆ <b>Facts have gotten more attention.</b></p>	<p>In the Snohomish pet waste focus groups, language about "126,000 dogs" and "20 tons of dog waste" were thought effective.</p> <p><i>"That gets everybody thinking."</i></p> <ul style="list-style-type: none"> <li>• Focus group participants also said that pet owners just need to be told, not convinced. <i>"Just straight to the facts. If you care about dogs, you'll open [the mailer]."</i></li> <li>• Vets agreed: <i>"They're absolutely just floored at the concept that they could get [disease] from the dogs."</i></li> </ul>

**MARKETING EFFORTS HAVE SHOWN EFFECT**

<p>◆ <b>Kitsap residents who recalled water pollution messages reported lower usage of yard chemicals and better care with vehicle fluids than those with no such recall.</b></p> <ul style="list-style-type: none"> <li>• However, those who heard a message in Kitsap did not show improved behaviors with pet waste.</li> </ul>	<p>Of those who remembered a water pollution message on the Kitsap Peninsula:</p> <p>24% reported "high levels" of the use of undesirable yard chemicals, compared to 38% who did not remember such a message.</p> <p>19% vs. 27% admitted to high levels of undesirable car-care practices (two+ of the following: not taking used oil to a collection facility, not soaking up spills, and not checking for leaks).</p>
<p>◆ <b>Tacoma's messages on car-care correlated with fewer respondents washing their cars on pavement, and with increased use of absorbent materials to soak up fluid spills.</b></p> <p>◆ <b>Tacoma marketing recipients increased their tendency to take used fluids to collection.</b></p>	<p>In the Tacoma test of car-care environmental messages, respondents who were exposed to education materials reported the following:</p> <p>55% using kitty litter on an oil spill, up from 49% in the baseline study.</p> <p>17% washing cars on pavement, down from 23%.</p> <p>42% washing cars on grass or dirt, up from 34%, and</p> <p>51% taking used fluids to a collection site, up from 39%.</p>

<p>◆ <b>Snohomish pet owners who were exposed to information on proper pet waste reported better behaviors than random respondents elsewhere.</b></p>	<p>In the Snohomish County test market:</p> <ul style="list-style-type: none"> <li>• 8 in 10 residents with dogs who received education materials always picked up dog waste and put it in the trash.</li> <li>• This compares to half of Kitsap dog owners and 40% in Pierce, in randomly-timed surveys.</li> </ul>
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**Avoidable Barriers**

<p>◆ <b>Producing finished marketing materials, is problematic, as residents are quick to find fault with any tagline, visual, or text.</b></p>	<p>In the BRSK work:</p> <ul style="list-style-type: none"> <li>• Attempts at humor to make an ad memorable often fell flat, as many "didn't get it."</li> <li>• Any image had to be local; it was dismissed if a lake, stream, fish, or storm grate did not appear familiar.</li> <li>• "Scare tactics" and "threats" often back-fired.</li> <li>• Different versions of similar ads were not equally popular.</li> </ul>
<p>◆ <b>Governments may not be able to depend on free support from intermediaries (like veterinary clinics).</b></p>	<p>Vet clinic employees said:  <i>"We get inundated with advertising."                  "It gets so you really have to choose, are you putting up this poster this week."</i></p>
<p>◆ <b>Distrust of government needs to be navigated.</b></p> <ul style="list-style-type: none"> <li>• <b>There is evidence that citizens trust government agencies as a source of reliable, unbiased information, but are reluctant to call a government agency about a specific problem, for fear of getting a fine or penalty.</b></li> </ul>	<ul style="list-style-type: none"> <li>• In Everett, most said that they would trust the city as a reliable source for information of surface water quality information (38% "trust a great deal," and 46% "trust somewhat.")</li> </ul> <p>In the Snohomish septic study:</p> <ul style="list-style-type: none"> <li>• 55% would "for certain" call a commercial septic care company with questions, vs. 7% who would certainly call the Snohomish Health District.</li> <li>• Almost 3/4 would <u>not</u> call the Health District with a septic problem.</li> </ul>

## SUMMARY

Puget Sound residents generally care about the environment and want to “do the right thing.” Behaviors generally reflect residents’ understanding of the problem and their understanding of the consequences of their behavior.

The problem of Puget Sound pollution appears to be just over the horizon for most residents of the region. They hear the reports of deteriorating health of the Sound and they take those reports seriously. For many (about 4 in 10) such reports are genuine cause for alarm about Puget Sound. But for most, the problems are not immediate or apparent.

Individual behavior reflects resident’s understanding of the connection between those behaviors and the larger problem. For example, soapy water from car washing and pet waste were consistently the lowest-rated threats to water quality. Not surprisingly, letting soapy car wash water go down storm drains and neglecting to pick up pet waste have been the most prevalent undesirable behaviors.

Barriers to changing personal behavior relative to car maintenance are related to the low level of appreciation for the problem coupled with the inconvenience and cost of taking one’s vehicle to a commercial car wash or oil change shop. With regard to pet waste, the “yuck factor” is added to inconvenience and low appreciation for the potential problem.

The good news is that, once people make the connection, they are willing to change. The dangers of pesticides have been discussed for decades, and most people have given them up. Similarly, most people have gotten the word about putting dog waste in the trash and picking it up on walks. This may be seen as a courtesy more than a health issue, but this suggests that they can be motivated to change that behavior.

There is every indication that raised awareness resulting from the efforts of local surface water management agencies will continue to change potentially damaging behaviors. A key will be to make explicit the connection between individual behaviors the damage to local waters.



## STORMWATER-RELATED BEHAVIOR

<b>Behavior</b>	<b>Problem Recognition<sup>1</sup></b>	<b>Solution Proposed</b>	<b>Current Behavior<sup>2</sup></b>	<b>Barriers to Action</b>
<b>Yard Care</b>	52%	<ul style="list-style-type: none"> <li>▪ Forego Chemicals</li> </ul>	<ul style="list-style-type: none"> <li>• Most use Chemical Fertilizer &amp; Herbicides</li> <li>• Few use pesticides</li> </ul>	<ul style="list-style-type: none"> <li>• Desire for green lawns</li> <li>• Those who hire out yard care use more chemicals</li> </ul>
<b>Septic Systems</b>	52%	<ul style="list-style-type: none"> <li>▪ Regular maintenance</li> <li>▪ Frequent pumping</li> </ul>	<ul style="list-style-type: none"> <li>• 1/3 pump every 3 yrs</li> <li>• Fewer than half have regular pumping schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Not making connection between “my system” and local water pollution</li> <li>• Cost of pumping</li> </ul>
<b>Vehicle Oil Change</b>	47%	<ul style="list-style-type: none"> <li>▪ Commercial Oil Change</li> <li>▪ Check for Leaks</li> <li>▪ Clean up Leaks</li> </ul>	<ul style="list-style-type: none"> <li>• About ¼ change own vehicle fluids</li> <li>• Few check for leaks</li> </ul>	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Inconvenience</li> </ul>
<b>Car Washing</b>	31%	<ul style="list-style-type: none"> <li>▪ Commercial Car Wash</li> <li>▪ Wash on Lawn</li> </ul>	<ul style="list-style-type: none"> <li>• About half wash cars at home (varies: 65% in Kitsap; 40% in Pierce)</li> </ul>	<ul style="list-style-type: none"> <li>• Low awareness of problem</li> <li>• Disbelief in solution</li> <li>• Inconvenience (no lawn; would wreck lawn)</li> </ul>
<b>Pet Waste</b>	20%	<ul style="list-style-type: none"> <li>▪ Pick Up</li> <li>▪ Bag &amp; Trash</li> </ul>	<ul style="list-style-type: none"> <li>• Just over half pick up on “every walk”</li> <li>• Fewer than half pick up daily in yard</li> <li>• 2/3 who pick up put in trash</li> </ul>	<ul style="list-style-type: none"> <li>• Low awareness of problem</li> <li>• Inconvenience</li> <li>• “Yuck Factor” (85% pick up after marketing effort in Snohomish Co)</li> </ul>

<sup>1</sup> Percent who rate as “significant source of pollution”

<sup>2</sup> “Best guess” estimates extrapolated from various surveys. Not all surveys asked each question.