

# PugetSoundPartnership

our sound, our community, our chance

## Water Quantity

### Comments Submitted via Email

4/14/2008 – 5/9/2008

**From:** Debby Hyde

**Date:** 05/9/2008

**Comment:** Before I knew the date of the comment period, I asked staff from the various Pierce County agencies to review the topic papers and provide comments. When I realized our review date was later than your requested date, I still felt it important to collect them and send them on for your use. Some of the comments are very general and probably similar to others. But some staff had very specific thoughts as you will see in the accompany attachment. I hope you will find them useful.

#### Water Quantity Topic Forum

\* Under current plans and programs there was no mention at all of the Coordinated Water System Planning Act as a tool.

#### Strategies:

\* Develop goals for % of non-potable water demand provided by reclaimed water (note this topic was covered in detail in the Water Quality issue paper see one comment below)

\* Establish conservation targets for water use

\* Identify target # of ASR and desalination projects and equivalent stream flow savings

#### Water Quality (reclaimed water)

\* They make a statement that if WWTPs were to be required to reduce discharge through production of reclaimed water the only real cost for supply is the purple pipe distribution system, which they acknowledge can be high. Really?? What about the cost to install the treatment facility to get it to the point it meets reclaimed water standards?

**From:** Derek Poon

**Date:** 05/09/2008

**Comment:** After sending this acceptance notice to EPA people, I got a nice set of comments indicating sediment is listed in Idaho. Leigh Woodruff stated:

Just wanted to comment on your email below on the statement that sedimentation is not usually listed under 303(d). Clean sediment is

considered to be a pollutant under the CWA, and if it is impairing beneficial uses or otherwise causing violations of WQS, it should be listed under 303(d). Hundreds of clean sediment TMDLs have been written here in Idaho. While most of these were driven by EPA listings in 1994, the State biological assessment methodology is identifying additional streams with sediment impairments which need TMDLs. Hopefully Washington's assessment methodology will pick up these sediment impairments such as in the Lake Sammamish watershed. Idaho is now also using EPA's CADDIS causal assessment tool to help identify which pollutants are causing impairment.

I left out "in Washington" in my statement to you. Sorry.

The challenge is that sedimentation (not contaminated sediment or TSS) and flow are usually not listed under CWA 303d IN WASHINGTON; as you can tell from my report, that makes it very difficult to treat the problem. A sediment TMDL can be done, such as for Upper White and Simpson HCP, but Ecology has not shown an active interest at this time.

The business of 303d listing and TMDL is a complex topic and my purpose is not to point fingers, because I would have to pick up a good share of the responsibility myself. My point is simply that all available tools be used creatively to address the Lake Sammamish type of predicament in Washington and elsewhere, so we don't end up working with an end result such as listing, but work proactively with prevention and avoidance. That may be the take home message from lessons from the past.

**From:** Andrea Copping

**Date:** 05/09/2008

**Comment:** On behalf of the staff of the Pacific Northwest National Laboratory (PNNL) Marine Sciences Laboratory staff, I would like to commend you and your staff for pulling together the five topic papers. There has been a great deal of thought and expertise brought to bear in creating these papers in a very short time, and they have provided an excellent point of departure for moving towards the Puget Sound Partnership Action Agenda.

I have worked with a number of PNNL staff to coordinate comments on the papers and I append those comments for four of the papers here. We have

focused for the most part on scientific findings that should help to inform management decisions in Puget Sound, and we draw from programs in which we have been intimately involved, generally in partnership with agencies, tribes, and academia.

I would like to credit our scientific staff in Sequim and Richland for contributing to these comments, including Dr. Irv Schultz, Jill Brandenberger, Dr. Tarang Khangaonkar, Dr. Gary Gill and Dr. Charlie Brandt.

## Freshwater Resources Topic Paper

The paper presumes that we can understand and manage the freshwater resources of the Puget Sound basin by working to provide “adequate” freshwater flows for many competing uses. This premise supposes we understand the meaning of and goals for “adequate freshwater flows”. We can only use this framework if we understand how much water is available in the basin (and in each sub-basin) at any time, and how that water is parsed between surface and groundwater. In terms of ecological risk assessment, it is necessary to define the ecological endpoints and hazards. In other words, we must define the resource values we wish to protect or enhance, assess the resources, and define the hydrologic tolerance limits within which the assessment endpoints would be unimpaired.

From our work with federal agencies as well as local and tribal governments, we believe that a baseline of hydrologic information could be established for the Puget Sound basin using existing data coupled with an integrated numerical modeling system that fuses data from ground stations, instream flow information, and remotely sensed data. In recent years, there have been significant improvements in the state of hydrologic models, data fusion, and our ability to interpret the output. Such an integrated baseline system would allow managers and policy makers to create scenarios for future flows, land-use planning, and expectations of climate change. We refer you to the Northwest Explorer website (<http://nwexplorer.info/Default.aspx>) for examples of this work.

We believe that an assessment of baseline and future projections of freshwater flows should take into account present conditions and future changes in land cover, streamflow use and management, land use, and climate. These changes would have to consider the myriad of possible impacts including: conversion of wetlands for agriculture and forest lands for development; road construction; wastewater and stormwater discharges; construction of dikes, levees, culverts; shoreline armoring; irrigation, crop

and vegetation management; changes in precipitation regimes and streamflow peaks; extreme events like floods; changes in precipitation patterns including snowpack and snowmelt.

The freshwater resources paper projects into the future, with the assumption that understand the baseline of freshwater flows that once occurred in the basin. In fact we really have very little knowledge of presettlement flows in most rivers and streams, and limited knowledge of flows going back more 50 years. Despite the number of streams with gauging stations, we have little knowledge of the nature and dynamics of flows as they traverse the watersheds or enter the estuary. The paper focuses on salmonid health as a desirable endpoint; however there are other desirable outcomes, for example in the estuaries, the health of seagrasses is affected by changes in salinity, impairing the support of many other marine species.

The paper effectively addresses water supply enhancement through demand reduction and augmentation of low-flow through storage management, which is of significant importance for human uses of water. However the impact of these measures on ecological resources is less certain, and is not discussed. Effective water resource management requires a multicomponent, multivalue optimization analysis. Current understanding of this process is based almost entirely on conceptual models; in order to understand and manage freshwater resources for many species, and many desirable endpoints, it will be necessary to create an integrated system of quantitative models that can be used for predictive purposes.

**From:** Susan Saffery

**Date:** 05/08/2008

**Comment:** We appreciate the opportunity to participate in the process of developing the Puget Sound Partnership Action Agenda. This document reflects the comments of professional staff with scientific, policy and programmatic expertise in this subject matter. While these comments are not “official City policy” per se, they do reflect the respected opinions of key staff from Seattle Public Utilities and Seattle City Light. In addition to these written comments, staff from both departments participated in the topic forum discussions directly. Comments made during those discussions stand alone and so are not necessarily reflected in these written comments. In reviewing our comments, please feel free to contact me if you have any questions, need clarification or would like more information.

General Comments

Assure Focus on Science-based Information and Actions: This document identifies many of the important issues, providing a good general discussion concerning freshwater resources in the Puget Sound region. It serves as a sounding board for additional comments and identification of issues from a larger and more diverse set of stakeholders. Knowing how tight the timeline was for the drafting of these papers, we feel this was a good first cut. However, as this effort moves forward, with the intent to use these papers as the basis for the creation of the Action Agenda, we hope that there will be an even greater inclusion of science and documentation and perhaps fewer assumptions and related opinions.

For example, data on the status of freshwater resources is largely lacking but is a key piece to accurately laying out this issue. A balanced approach should include the facts and documentation of the values and benefits of freshwater resources first, and then look at the problems and potential solutions based on the factual material. Without understanding the quantified value of the freshwater resources, the identified threats have little context, and readers are left to either impart their own relative value judgments, or accept the opinions of others.

We agree that documentation of facts, trends, and tipping points is a good first step to unify diverse stakeholders and create clear goals and an action agenda. Factual evidence to support a number of the concerns and perceived threats needs to be included; facts need to be referenced and assembled. Where factual evidence does not exist, the PSP should determine priority areas for research and monitoring to meet the goal of scientific-based action and to assure that actions taken are not based on assumptions.

Need to show that the solutions are correlated to documented scientific information regarding cost-effectiveness in solving problems that are clearly defined: The papers would benefit from a clear problem statements, e.g. too much nitrogen, too warm temperatures in areas without adequate riparian cover, etc. Then solutions can be tied to those specific problems and a benefit-cost analysis can be done to determine the best solution to the problem. Without that, it runs the risk of providing shotgun solutions.

Similarly, topic areas need to be concisely stated to avoid a large “parking lot” of problem statements, structured around some selected topic themes. Insight should be provided as to the origin of these topic themes and there should be factual information provided that reflects their relative strategic value; there needs to be a context provided through an overall problem statement.

Overall lack of attention to conservation as a tool for managing demand: As PSP consultants and staff have already identified, one significant gap we see in these papers is the limited focus on water efficiency and conservation. Water efficiency is an important tool in freshwater resource management. It has a very high regional potential, and unlike many other management tools, it can be quickly implemented at a cost competitive with other options. Additionally, opportunities for water efficiency, energy conservation, and initiatives to help address climate change are just being linked together. This is an area the PSP may want to explore further.

Conservation provides a very successful and cost-effective approach to reducing demand in the region. Seattle has been very successful with its programs. Incentives and removal of barriers to implementing programs will make those same programs more accessible to other utilities and municipalities. Conservation should be first before creating “new water”, including reclaimed water and desalination, which come with high price tags. We provide more specific comments on conservation and water efficiency later in this document.

A trend toward regionalizing actions: There are a number of examples in the report that suggest that the next step is to regionalize actions but it isn't clear these add value. It is important to recognize the localized nature of solutions and to create actions that will garner support. Regionalization without clear value and justification risks failure, as we have seen in the past. Varied physical, geographic, climate and other natural conditions around the Sound, a range of values by stakeholders, and disparate access to resources, contributed to the challenge of rally around particular approaches and plans. To make real progress in restoring Puget Sound, we must recognize those limitations and design solutions that work with those features. Force-fitting regional solutions where the value is not clearly spelled out and accepted by affected parties leads to energy spent on resistance, limited or no implementation, and consequently risks no real solution.

Emphasis on rules and regulations as a way to accomplish programs: Before moving to new rules and regulations, incentives and innovative solutions should be given a chance to work. There are partnerships to be built between the public and private sector that can allow us to work together to solve problems. Rules and regulations can create divide, and potentially underestimates the intent of some. In addition, rules and regulations often attempt to apply universal solutions where they may not work or be the best solution. While the regulatory framework deserves

examination, implementing incentives and crafting measurable goals and outcome expectations without laying down rigid requirements is a good first step. Problems must be clearly defined in order for related incentives to be successful.

## Specific Comments

S1:

S1 A. Changes in Watershed Hydrology.

- In discussing freshwater hydrology, it is essential to maintain clarity between regulated and unregulated rivers and between mainstem and tributary streams.
- It is essential to consider not just flow and flow variability, but also the condition of the channel and floodplain in which flows occur. The character and distribution of sediments, riparian vegetation, and floodplain connectivity all interact with flows to result in channel formation and conditions experienced by fish.
- The third bullet is an appealing image but the assertion needs reference to the professional literature.

S1 A. Status of Freshwater Quantity in the Puget Sound Region

Where in the Puget Sound region are the amount, timing and distribution of freshwater flows adequate? Where are they impaired? This baseline information is important to determining what actions need to be taken.

S1 A.

The amount of fresh water entering Puget Sound in June through September has decreased by 18 percent between 1948 and 2003. This likely represents changes due to warming, land use, and regulation of flows. (Snover, et al., 2005).

Do we know if: 1) return flows are not included in the 18%; 2) the precipitation has decreased by a similar amount; or 3) if the evaporation has increased sufficiently to account for the decrease?

Section S1 A., Freshwater Inflows to Puget Sound, first bulleted statement

“There are two major periods of runoff into Puget Sound: Peak flows occur in December and June (U.S. Department of Commerce, 2007)”

While this statement may be reasonably accurate for Puget Sound as a whole, it may be useful to look in more detail at variations in peak flow timing across different sub-regions. If so, please note that significant

numbers of peak flow events have been recorded in low elevation river basins in mid-Puget Sound, such as the Cedar River and Green River basins, between November and February. Please see:  
([http://nwis.waterdata.usgs.gov/wa/nwis/peak?site\\_no=12117500&agency\\_cd=USGS&format=html](http://nwis.waterdata.usgs.gov/wa/nwis/peak?site_no=12117500&agency_cd=USGS&format=html))  
([http://nwis.waterdata.usgs.gov/wa/nwis/peak?site\\_no=12113000&agency\\_cd=USGS&format=html](http://nwis.waterdata.usgs.gov/wa/nwis/peak?site_no=12113000&agency_cd=USGS&format=html))

## S1 A. Changes in Watershed Hydrology, third bulleted statement

“...that require higher flows (than typical) to make them favorable during low-flow periods.”

This statement would seem reasonable for systems that have not been confined and narrowed by artificial levees and other forms of bank hardening and/or unusually high rates of channel incision. Might one expect that, in such artificially altered systems, elevated flows during the low flow season may not result in improved conditions and may in fact result in more uniform conditions with water depths and velocities that exceed optimal ranges for small fish?

S1 A. In the bulleted list of major factors influencing Puget Sound through fresh water inflow, the fourth bullet is misleading. Tidal exchange volume far exceeds freshwater inflow. This, coupled with Puget Sound bathymetry of basins and sills, more strongly influences “subtidal circulation”. Freshwater inflow strongly influences surface salinities and of course estuarine circulation.

## S1 A. Changes in Watershed Hydrology fourth bulleted statement

“Full ecosystem function must be considered to determine whether flow is adequate to protect habitat function. Naturally varying high flows as well as minimum low flows are important. Over the evolutionary history of Puget Sounds’ native aquatic species, naturally varying flow conditions have played an important role in the adaptation of those species to local river and stream systems and habitats. When flow conditions fall outside the range of historic natural variation, the viability of native species adapted to that local variation in flow can be affected. (Spence, et al., 1996; Naiman et al., 1992, 2008)”

While we concur with this general statement, it is perhaps also important to consider the rates at which environmental conditions change and the capacity of various native species to adapt to changes in their environments.

For example, salmonid species adapted to and flourished during large geologic and climatic changes that occurred relatively slowly since the last Ice Age. However, these species have clearly been challenged by much more rapid rates of change associated with natural resource extraction, development, and urbanization that occurred during the last 100 years.

In addition, it is perhaps increasingly important to consider, not only the magnitude, duration and frequency of varying stream flows, but also the altered nature of stream channels that receive these flows. The channels of many Puget Sound streams have been substantially straightened and confined with levees and other forms of bank hardening. In addition, inputs of coarse sediment have been altered and the frequency and delivery of large woody debris has been greatly reduced in many systems. In these altered channels, it would seem prudent to improve our understanding of the specific interactions between stream flow and the geomorphic processes influencing the formation and maintenance of important habitat features. S1, p. 4 “Future Demand for Fresh Water” assumes same levels of per capita conservation in the future as exists today. That’s understandable but per capita consumption will likely drop.

While there is not a regional demand forecast, there is a demand forecast for the three county area, which makes up the majority of the population in Puget Sound. This forecast was completed by the CPS Water Suppliers’ Forum in 2001 and is included in a document called The Outlook. The Outlook is being updated this year. This paper should note this work and acknowledge that it could help address some of the information gaps in this region. It would be informative to determine what portion of the anticipated population increase of 1.4 million will be included in the Forum’s updated demand forecast.

#### S1 B. Data Gaps and Uncertainties – 2nd bullet.

There is no regional assessment of the adequacy of flow variations for optimum habitat function, although some newer operational permits for FERC licenses and HCPs are considering high- and low-flow release prescriptions (Cushman Hydroelectric Project, Seattle Public Utilities Cedar River HCP).

Please refer to the comment below regarding our HCP. The Cedar River HCP includes (past considering) the “high- and lo-flow release prescriptions” that are considered beneficial. This reality might obviate the assertions that ‘stream flows are problematic for instream resources in the Cedar River.’

S1 B. Adequacy of supply - It is important to acknowledge that streams would have experienced a range of low flow conditions before development. Thus, “adequacy” must always be considered a relative term, and its evaluation depends on a variety of habitat factors and population parameters.

S1 C. Data Gaps and Uncertainties- Water system plans are numerous and not regionally compiled. If they were, what would we gain? More important is the quality of the content of those plans as they relate to utility impact on Puget Sound resources, and coordination of those plans with land use agencies.

S1.C. Data Gaps and Uncertainties- Regional water supply planning is not occurring everywhere. The work that is being done by the Central Puget Sound Water Suppliers Forum (CPSWSF) is describing the supply and demand situation in central Puget Sound. Unlike the local water system plans, it will not be laying out a strategy for meeting demands in the future. Water systems are not like electricity in that you can’t easily move water around. There are significant infrastructure and water quality issues that make this a bigger and more costly challenge. So supply and demand issues tend to be more local. Regional solutions come from utilities coordinating with one another. But it is essential to understand the local conditions in order to do that. Having a body like the CPSWSF provides that forum for looking at the regional view in central Puget Sound where proximity to other systems is very good. Coordination among utilities is more important than doing more planning. That being said, this may vary in different parts of the Sound. It may make no sense in parts of the Sound where water systems are more spread apart and have fewer opportunities to coordinate. This data gap assumes that regional water supply planning is a good thing throughout the Sound.

S1 D. Climate Change Data- Just as a matter of point, the Climate Impacts Group predicted climate change impacts on regional hydrology. The local utilities forecasted the demand and examined water supply alternatives. Further in this section, it would be more representative to give ranges for different basins than use the ensemble average across basins. It is misleading to characterize the information we have on climate change as applicable across basins and precise enough to come up with exact numbers. Different GCM’s produce different results that are not fairly simplified into an ensemble average. This can lead to an overstatement of the problem and mislead decision-makers into believing that regional action can be based on this information.

S1 D. “Climate Change Data”. We are not aware that UW CIG had done regional demand forecasts. Also, this paragraph notes ensemble averages for discharges across basins. It would be better to refer to ranges across basins.

S1 F. A big gap in our knowledge is a full understanding of the hydrologic impacts of climate change, particularly how climate change may alter rainfall patterns in the NW.

S1 G. Data that indicate groundwater levels, trends, and depletion on a regional scale. Again, what is the value of collecting this information? How is it going to be used in creating solutions. We need to avoid collecting information that is not put to use.

S1 G. Gaps in understanding - Suggest adding bullet: Fuller understanding of the ecological impact of flow alteration, in addition to instream conditions and fish populations: i.e. riparian vegetation, instream primary production, invertebrates, herpetiles, and birds.

Table S1-1, second row, last column:

“summer/fall baseflows in all AND spring flows and fall freshets in Cedar River”

We are unclear about the technical basis for asserting that stream flows during these periods are problematic for instream resources in the Cedar River and we hope these assertions do not refer to Seattle’s current instream flow management practices on the Cedar River. Seattle’s Cedar River instream flow management practices during all times of the year, including the spring, summer and fall, are governed by the provisions of the Cedar River Watershed Habitat Conservation Plan (HCP) and companion agreement, the Instream Flow Agreement for the Cedar River (IFA) as approved by the National Marine Fisheries Service, United States Fish and Wildlife Service, Governor of Washington, Washington Department of Fish and Wildlife and Washington Department of Ecology in April of 2000. The 2006 Settlement Agreement between the Muckleshoot Tribe and City of Seattle (MIT/Seattle Settlement Agreement) incorporates these same flow management provisions, extends the term of the provisions beyond the 50-year period established by the HCP, and further limits Seattle’s maximum allowable annual diversions beyond those limits established by the HCP. Detailed discussions of the biological basis for the guaranteed flow regime prescribed as part of the IFA are described in sections 4.4.2 and 4.4.4 and 4.6.4 of the HCP. A summary of relevant aspects of these discussions is provided below.

The HCP guaranteed flows during the spring months are well above the levels required to provide Maximum Weighted Usable Area for juvenile Chinook salmon, coho salmon and steelhead trout as determined by collaborative Physical Habitat Simulation (PHABSIM) analyses. In addition, Seattle works closely with the interagency Cedar River Instream Flow Commission (IFC), established by the HCP, to allocate discretionary water (over and above guaranteed minimums) to meet four additional objectives during the spring, including:

- Refilling the winter flood pocket in Chester Morse Reservoir to ensure sufficient water storage for instream resources and municipal water supply during the summer and fall
- Elevated stream flows during early spring to support beneficial instream conditions for emigrating juvenile sockeye
- Moderated stream flows during late spring to provide high quality habitat for spawning steelhead in locations that minimize the risk of subsequent redd dewatering during the summer incubation period
- Reserving sufficient flood storage capacity in Chester Morse Reservoir to help reduce the risk of large peak flows that may scour salmon and steelhead redds.

During the summer months, the HCP guaranteed flows are also near or above the levels providing Maximum Weighted Usable Area for juvenile Chinook, coho and steelhead. As during all other times of the year, Seattle works with the IFC to allocate discretionary water, when available, for additional benefits to instream resources during the summer including enhanced dewatering protection for steelhead redds and augmented base flows during the lowest flow period of the year.

P1:

P1 A - Water Conservation Programs

Conservation programs vary widely within the Puget Sound region. The City of Seattle employs an effective conservation program that could be used as a model in other areas. Ambitious conservation programs have been shown to be effective in reducing per capita water use. There is little consistency in goals for water use efficiency over the Puget Sound region. Starting in 2008, provisions in the 2003 Municipal Water Law will require larger water systems to provide water use efficiency plans (WDOH, 2008). However, the goals will vary by water system, and the rule does not include specific targets for efficiencies.

General comment: Facts on actual freshwater use in the region, including long term trends and forecasts, should be presented. General statements about increased population and per capita per day use are used as illustrations of a potential threat. The magnitude of existing use and the extent of impacts of future use should be presented. Per capita and total water use in many of the major water systems in the region have been declining over the past decade, and the continuing trend in this decline suggests more analysis is needed for accurate projections.

The state and the regional governments have created many barriers to water efficiency, mostly unintentional. At the same time, governmental incentives to encourage water efficiency are still rather rare. Among the state barriers to efficiency is a use-it or lose-it water right system, state tax and other revenue weighted toward increased water sales, and lack of a statewide water efficiency plan and goal. Attempts to remove legal barriers to the more efficient use of rainwater and storm water have had limited success in the legislature. State incentives are largely lacking for financial and technical assistance to major water users. Water conservation incentives are also lacking from the State's Utilities and Transportation Commission, who regulates private water systems in the state, yet they have granted incentives to energy utilities for energy conservation.

While new development will benefit by having fixtures and plumbing code that drive more efficient use of water, there needs to be a broader regional embrace of conservation that will also decrease per capita consumption through a programmatic approach.

Large public water utilities have state approved long term system plans. They are including conservation as part of their long term planning process. Elected officials of each public water system are required to hold a public meeting before setting a water efficiency goal for their system. This approach provides a higher level of accountability and flexibility for utilities to set cost effective and environmentally sensitive goals, as opposed to a one size fits all state mandated minimum goals. In stark contrast to public water utilities, the largest water uses in the State, agricultural and industrial self supplied, have no state water efficiency requirements. Sadly, they also have many barriers to water efficiency, and very few incentives.

P1 A. Threat and existing policy.

- Last bullet, add “and floodplains”.
- With respect to Instream Flow rules, there is a need for evaluation of the

effectiveness of rule implementation in limiting new water rights and in curtailing use when indicated by low flow or drought conditions.

P1 B.

- Desalinization. Energy efficiency and impacts should be mentioned in any discussion of desalinization technology.
- Stormwater infrastructure and design should be explicitly addressed in this topic area as well as in land use or water quality.

P1 B. (p. 28) Minor point, but under Water Conservation programs, change City of Seattle to Seattle Public Utilities. Also add “multi-sector, multi-faceted” after “employs”

P1 C. (p. 30) Under “C”, last bullet, need to make sure that whenever there is discussion about use of reclaimed water that they also refer to using rainwater and greywater. Rainwater harvesting also has the additional benefit of potentially adding useable detention storage, which could be a benefit for drainage control purposes during the wet season. I believe the State’s Water Resources Preparation & Adaptation Working Group took this approach.

P1 D. - Gaps in Specific Programs Gaps we have observed in existing programs are summarized as follows:

- Current conservation programs appear inadequate to address peak season use or to initiate social change in water use patterns throughout the entire region, although there are some locally successful programs. This is evidenced by per capita water use data for some utilities and the relatively small percentage of reclaimed water use, region-wide. To address the combined threats of population growth and climate change impacts to streamflow during low-flow periods, per capita consumption of water will need to be reduced in the future. There is no current program focused on social behaviors to address the combined impacts of these threats region-wide.

Unfortunately many state and local barriers exist that restrict water efficiency. At the same time, few incentives exist to help maximize benefits and promote water efficiency. Disincentives abound. The recommendations from a state appointed joint task force on water use efficiency, along with proposed legislation, have largely not been adopted.

Some of the strongest drivers for water efficiency include strong user economics, a well developed public conservation ethic, and risk reduction

for an uncertain climate future. Many local examples of water efficiency successes are readily available. These could provide a firm foundation for projecting a larger regional “conservation” potential and help to quantify the benefits. The good news is that efforts to do this are already underway as a regional utility forum.

- Reclaimed water programs have been slow to take hold due to public acceptance and perceptions, as well as regulatory hurdles. These barriers to reclaimed water use are addressed by the Water Quality Topic Forum.

The “relatively small percentage of reclaimed water use” reflects that there are not environmental drivers laying out a case for reclaimed water and that, so far, most reclaimed water projects are not cost effective. Reclaimed water programs have been less hampered by a lack of public acceptance, perceptions and regulatory hurdles, but rather the cost for such programs exceed benefits. Returning to the topic of conservation, there should be greater efforts around conservation before focusing our attention on reclaimed water. Initiatives to ramp up use of rainwater, stormwater and reclaimed water should be at the very least accompanied by a dramatic increase in conservation, and more likely should follow that dramatic increase.

Another related issue not mentioned in the paper is the role of decentralized reclaimed water, which should be the focus, rather than centralized facilities. This issue is implicit in discussions about pumping reclaimed water back up to headwaters or mid-basin. This is very inefficient from an energy perspective.

Table P1-1.

The entry for FERC could be expanded or split into two. Additional tools included mandatory conditioning authority of federal agencies with a nexus to the project and opportunities for third party intervenors to participate in the licensing process.

The entry for Stormwater should include municipal stormwater permit holders as managing agencies and should expand on the ability of permit provisions to address both the rate of flow and stormwater pollutant loading.

S2:

S2.A. Demand Strategies- The report indicates that “The Water Quality Topic Forum is addressing reuse alternatives and documented effectiveness of this demand strategy.” I was unable to see that documentation in the water quality report.

S2 A. Solution (Conservation): Help reduce threats of population growth on freshwater resources. Demand strategies: focus on reducing or maintaining consumptive uses of water.

S2 A. Solution example: Seattle Public Utilities (SPU) employs a conservation program that has been effective in reducing per capita water use by 1 percent per person per year. SPU has reported that their “1 percent per person per year by 2010” conservation goal has resulted in an average summer use per typical three-person family of 240 gallons of water per day (80 GPCD) (SPU, 2005). Seattle’s summer usage of 80 GPCD is significantly less than the statewide annual average usage of 97 GPCD reported by Lane (2004).

S2 A. Demand Strategies should include prices/rates. Also, rainwater and greywater should be mentioned whenever reclaimed water is mentioned. Include mention of the Saving Water Partnership to highlight a sub-regional group that is helping to deliver on conservation savings for the region.

S2 A. Where you talk about SPU’s conservation program you could add some additional context regarding historic savings to highlight the dramatic reductions in per capita water use and the additional population served while holding demand constant. This could help highlight what can be done. In addition, SPU and its customers have committed to achieve an additional 15 mgd of conservation by 2030.

S2 A. Seattle Public Utilities (SPU) employs a conservation program that has been effective in reducing per capita water use by 1 percent per person per year. SPU has reported that their “1 percent per person per year by 2010” conservation goal has resulted in an average summer use per typical three-person family of 240 gallons of water per day (80 GPCD) (SPU, 2005). Seattle’s summer usage of 80 GPCD is significantly less than the statewide annual average usage of 97 GPCD reported by Lane (2004).

SPU’s conservation program has reduced per capita water use approximately 38% since 1984 from 165 gpcd to 100 gpcd while at the same time population has increased by 18% from 1.04 million to 2.8 million. The result is that actual annual demand has decreased since 1984 and is forecast to remain flat or continue to decline for the next 20 plus years.

S2 A. Dam Operation Strategies, Hydropower FERC. A useful citation for the Skagit River project is  
North American Journal of Fisheries Management

Article: pp. 835–852 | Full Text | PDF (515K)

Changes in the Distribution and Density of Pink, Chum, and Chinook Salmon Spawning in the Upper Skagit River in Response to Flow Management Measures

Edward J. Connor and David E. Pflug

Seattle City Light, Environment and Safety Division, 700 Fifth Avenue, Seattle, Washington 98104-5031, USA

S2 A - first paragraph of “Tribal Negotiations”

The negotiations described in this paragraph are more correctly described as follows. The City of Seattle, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Governor of Washington, Washington Department of Fish and Wildlife and the Washington Department of Ecology signed the Cedar River Municipal Watershed Habitat Conservation Plan (HCP) and companion Instream Flow Agreement for the Cedar River (IFA) on April 9, 2000 after more than 6 years of active discussion, negotiation and development. Although Muckleshoot Tribal representatives took part in many of the discussions, the Tribe did not sign the agreements and, in late December of 2003, filed suit challenging the agreements and the issuance of an Incidental Take Permit under section 10 of the federal Endangered Species Act.

Subsequent discussions between Seattle and the Tribe resulted in the 2006 Settlement Agreement between the Muckleshoot Tribe and City of Seattle (MIT/Seattle Settlement Agreement) in 2006. This agreement incorporates by reference the provisions of the HCP, including the IFA and all provisions related to the management of stream flows (Section B.1.3 of the MIT/Seattle Settlement Agreement). In addition, the MIT/Seattle Settlement Agreement further restricts Seattle’s annual diversions from the Cedar River beyond the limits established by the HCP (Sections B.1.1 and B.2), thereby expanding flexibility for and reaffirming collaborative management of discretionary water, when such water is available (Section B.1.2).

S2 C. Effectiveness - It should be acknowledged that the IHA method and software depends on a record of daily flow statistics of adequate accuracy and duration, typically USGS gauge data. Such data sets are available for only a small cross section of Puget Sound streams. By the same token, understanding and use of hydrologic modeling continues to advance and can be an important tool in evaluating effectiveness of management techniques.

S2 D. The science question is ‘which approaches are known to have the

most effective results for managing water resources for habitat? For municipal, domestic, agricultural, and industrial uses?’

The answer is provided that:

In summary, management approaches that have some level of documented effectiveness in protecting and/or restoring freshwater supply for both instream and out-of-stream purposes include:

- Coordinated demand management,
- Dam operation strategies that provide more optimal flow conditions,
- Instream flow rules that include provisions for future water reservations and basin closures, and
- Adequate effectiveness monitoring and adaptive management.

SPU is currently employing each of these management approaches for Seattle regional water supply and its activities are used as examples for each of the management approaches. SPU fully acknowledges that improvements can and should be made to its approach to management of the rivers and reservoirs as evidenced by the current adaptive management analysis underway as a part of the HCP for the Cedar River. However, the reference to the Cedar River and by extension the Tolt River in Table S1-1 as “poor” High Flows and “poor” Low Flow does not seem to be supported by the evidence. Since, SPU is employing all of the management approaches that have some level of documented effectiveness in protecting or restoring freshwater supply and has been successful at these approaches, the conclusion would follow that the rivers managed as a part of the SPU regional system are protected or in the process of restoration.

P2:

P2 C. 2a- Conduct a regionally consistent assessment of water use and future water needs, and availability. It is not exactly sure what this means, nor is the value of such action clear. This holds true for both surface water and ground water.

P2 C. 3b - Use the assessments of climate change to estimate regional and local impacts on water supply, water demand, floods, groundwater, and the ability to meet instream flow requirements and fish targets.- There are several problems with this. The most important is that it ignores that, at least for the 3 major utilities in the Puget Sound region and maybe others, water supply estimates are determined on meeting instream flows. This statement doesn’t reflect that there are already limitations on water supply from water rights and agreements on meeting instream flows. Another problem with this is that there is not good enough data from the CIG work to assess climate change impact on floods and groundwater. For example,

the intensity of rain events is not captured which is critical to assessing impact on floods.

P2 C. 5d. Develop water supply management plans - I think we need to find a way to coordinate rather than create more plans. It would probably take a few years to create a regional management plan and not necessarily succeed in getting the parties to agree on much in the process. There needs to be a set of goals and objectives to achieve to let utilities work it out.

P2 C 6a- Develop a process to integrate land use planning, watershed planning, water quality planning, utility planning, and ESA recovery planning. This is probably one of the most important proposed actions. However, the scope of this is huge and needs to be narrowed in terms of the goals and objectives, and targeted to create a clear benchmark for success. Otherwise we'll be in an endless planning process that ends up with no real solutions. A model process that starts with objectives and goals, can be used by local areas. Land use planning tends to be left out of the equation in water resources and is essential to be a significant aspect of any water resource planning.

P2 A2 Criteria and Benchmarks The value of regional reporting and compilation of water use data is questionable. What is the purpose of this effort and how is the data going to be used to benefit Puget Sound?

P2 A2 Benchmarks. 2. Develop goals for percent of non-potable water demand provided by reclaimed water. This sounds like a pre-cursor to requiring reclaimed water, and assumes that the best approach to reducing use of drinking water supply for non-potable purposes is reclaimed water. More could be saved through a conservation program or price incentive, and more cheaply. With this in mind, it is more practical to set a goal for reduction of demands, which takes into account reduction of non-potable water demands. Then, appropriate, cost-effective local solutions can be applied. We should all be stewards of public money as well as stewards of water resources. We should not be spending money where we cannot produce commensurate results.

P2 A (Pg 45). Making Progress – Outcomes and Benchmarks

2. Identify water needs or goals for people by watershed (WRIA) and promote demand management.

- Compile a regional summary (Puget Sound basin wide) of current water use (all sectors), projected water use, and water supply (consider climate change impacts).
- Develop goals for percent of non-potable water demand provided by

reclaimed water.

- Establish conservation targets – e.g., Puget Sound per capita water use factor.
- Establish purveyor conservation targets.
- Identify a target number of ASR and desalinization projects and equivalent streamflow savings.
- Determine the percent of water system plans that have adequate water supply to meet the 2020 threshold (projecting adequate supply through 2020).

The goal of establishing a percent of non-potable water demand to be supplied by reclaimed water is unsubstantiated. The first priority in any water planning is to make our overall water use as efficient as possible – demand management. A second element of this analysis may be to ask the question – does a particular use of the water supply need to continue. At some point in the future as has happened in the past, public policy may decide that certain water uses may not be necessary. One example may be the irrigation of play fields – the natural turf may be replaced with artificial turf, eliminating the need for irrigation.

P2 C. 2b (p. 42) Discussions about sustainable water use should include rainwater & greywater. The bullet regarding “develop rules” should read, “develop rules for rainwater and greywater use and water reclamation that promote water conservation.” In addressing the issue of financial support (in the last bullet), then again, it should be extended to rainwater and greywater. Also, add a bullet that calls for “identifying and addressing barriers to the use of rainwater, greywater and reclaimed water.”

P2 C. 3b (p. 43) The assessment of the impacts of climate change on water supply should be done by the suppliers themselves, to the degree they have the capability to do so. This might be a good place to note that Seattle, Everett and Tacoma have all assessing their own supplies and presented this information to various audiences.

P2 C. 5c (p. 44) Adjudication seems like a very, very long term action and expensive and distracting as well. Question if this is an issue PSP wants to tackle.

P2 C. 5d We question the value of a three county water management plan, particularly when the Outlook Update is already a good tool providing coordinated information.

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**From:** Jennifer Kropack

**Date:** 05/08/2008

**Comment:** Hi Lisa - Sorry, you were always so busy at the meeting yesterday, I didn't find a chance to introduce myself. Anyway, I made corrections to your cites about the DOH planning and water use efficiency program. I'd like you to have the most accurate facts in your report.

<<PSP\_Report\_Edits\_May2008JK.doc>>

I've also re-sent the table I provided you back in March but did another one by the Counties within the Puget Sound watershed, compared against the statewide number. You can see that the PS watershed has 66% of the total number of Group A water systems in our state. And your report does not document the number of Group B's or exempt wells, and because there are few new water rights granted and closed basins, this is one of ways, growth has occurred in the last two decades in this region.

<<WRIA\_1-19\_GroupA\_Totals\_Puget Sound Partnership\_032008.doc>>

Good Luck on this large task. You gained many good suggestions for making the report stronger.

see word documents:

PSP\_Report\_Edits\_May2008JK.doc

WRIA\_1-19\_GroupA\_Totals\_Puget Sound Partnership\_032008.doc

**From:** Jane Lamensdorf-Bucher

**Date:** 05/08/2008

**Comment:** Attached please find a cover letter from Theresa Jennings, Director of the King County Department of Natural Resources and Parks, and the following sets of comments on the Puget Sound Partnership topic forum discussion papers and risk analysis:

- 1) General Comments
- 2) Human Health
- 3) Land Use-Habitat
- 4) Water Quality
- 5) Species-Biodiversity
- 6) Water Quantity
- 7) Risk Analysis

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We are also sending a hard copy to your attention at the Puget Sound Partnership address in Olympia.

see PDFS:

cover ltr to MNeuman from TJennings re comments.pdf

KC General Comments pdf

KC HumanHealth Comments pdf

KC LandUse-Habitat Comments pdf

KC Water Quality Comments pdf

KC Species-Biodiversity Comments pdf

KC Water Quantity Comments pdf

KC Comments on Risk Analysis pdf

**From:** Stewart Toshach

**Date:** 05/08/2008

**Comment:** Please forward attached comments/analysis to appropriate people in the Partnership or Science Panel.

See document:

PSP Topic Forums\_data needs\_2008-05-07.doc

**From:** Denise Lahmann

**Date:** 05/07/2008

**Comment:** Comments on Initial Discussion Draft  
Freshwater Resources Topic Forum

Scope: In general the paper covers a comprehensive range of issues and uncertainties. In many parts it appears to be based on generalities, or on very localized data. That makes conclusions less credible.

Where is supply inadequate? This question is posed in paper S1 (#C). However, the paper skirts around saying that there is no answer today. We may speculate, but even as Ecology's stream and basin closures and water rights attempt to address and prevent this, no specific areas were listed in the paper. We should admit that we don't "know" – a very large gap indeed.

Population "threats": Because it is unknown how many water systems' plans include some of the projected growth of 1.4 million people (2020) noted in the paper, labeling human population (through consumption) as a "significant" threat to freshwater supply seems unsubstantiated. In addition,

if the process works as the laws direct, growth will not be permitted where there is no legal right, or proven supply of water to serve it. Water right law, water system planning, and Growth Management Act provisions should highlight where growth can be accommodated based on water availability. This was not well explained or discussed in the paper (e.g. Page 28, “Growth Management”).

**Water System Planning:** It would be helpful to have the paper clarify a number of items about Water System Plans (WSP) required by the Office of Drinking Water (ODW), Department of Health (DOH). WSP are not required for every public water system. In general, they are required for water systems with 1000 or more connections, brand new Group A community water systems, or systems of any size greater than 15 residential connections if expanding. ODW planning requirements are published at: [http://www.doh.wa.gov/ehp/dw/Programs/water\\_sys\\_plan.htm](http://www.doh.wa.gov/ehp/dw/Programs/water_sys_plan.htm). Smaller systems are required to plan, but those documents are not required to be submitted to ODW for review and approval. The planning document is also smaller in scope.

According to ODW statistics, there are 17, 264 public water systems in the state. Of those, 4193 have more than 25 people or 15 connections (Group A). There are 2273 Group A community water systems from 15 connections on up. If Puget Sound counties account for about one-half of all water systems in the state, then there would be around 1137 Group A community water systems to look at. The 13,071 Group B systems (14 connections or less; fewer than 25 people) in the state have no planning requirements.

Existing plans are required to be updated every 6 years, though few meet the letter of the law. According to the ODW website, there are about 130 plans currently active in the planning process for the 12 Puget Sound counties. Assuming that this is about 2 years worth of submittals and on-going activities, it represents about 1/3 of the systems planning in the Puget Sound area. Then one might expect only about 390 water systems to have “current” (within 6 years) information in the Puget Sound area. Perhaps ODW can be consulted for more exact numbers.

Coordinated Water System Plans are in effect in critical water supply service areas. They are an effort to combine and coordinate planning by utilities in the given area. In those areas, all Group A community water systems must prepare and submit WSP.

**Water Conservation Programs:** Suggest a more positive approach be taken (pg 28 and elsewhere). Seattle’s program is a good “urban” example. Many

near-by utilities have commented that when the tiger roars, their water demand decreases – whether they have supply problems or not.

The fact that efficiency goals will vary by system is a good thing. (Page 28) Some systems are very leak-conscious already and should be rewarded. Others have failed to make improvements for many years and should set higher goals. Water systems must set their own efficiency targets – and make them known to their customers. They must also report on progress.

Fresh water supply: Class A water and/or tertiary treatment should be noted as additional water supply. Public health is protected by the treatment level, and by the uses allowed for this resource. Water right laws may act as a barrier.

Metering: This area of accountability is hardly addressed in this document. While much is made of lack of data, the installation, reading, and reporting of meters and their data would go a long way to understanding usage on annual average and seasonally. New rules for ODW have expectations of water systems doing just that, although an extended (12 year) timeline was given for meter installation. If there was one activity we could undertake, it would seem to be requiring meters on all wells and surface water systems to document withdrawal, leakage and use. In addition to the understanding of our current situation, meters generally do promote conservation, even if bills are not based on usage. Enforcement staffing and penalties may need to be added to the implementation plan.

Again, Office of Drinking Water's role in water use efficiency should be noted and highlighted.

Database: If meters existed and were read, where would all the data reside? This is an undertaking in itself, and should be considered before expectations of metered data are raised. I don't believe ODW will be accumulating the data it requires into a regional, WRIA, or even county-wide accounting. Is this a Health function, PSP function or an Ecology function?

Consumptive uses: Will well owners served by individual or large on-site sewage systems be regarded as non-consumptive, or partially consumptive? This seems right, in terms of returning water to the ground.

Keeping water in the watershed: Solutions involving preservation and restoration of wetlands, forest duff, and other areas that retain stormwater should be added to water management strategies.

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Submitted by Denise Lahmann, Office of Shellfish and Water Protection,  
Washington Department of Health.

**From:** Derek Poon

**Date:** 05/07/2008

**Comment:** Forgot to note that this proposed listing is for land locked Kokanee,  
and causes are all fresh water, not hatchery, harvest, hydro, or the  
ocean.

This will change the landscape a bit for Puget Sound Lowlands. One more  
listing with an equally difficult chance for recovery. I attached a  
report on field conditions.

The challenge is that sedimentation (not contaminated sediment or TSS)  
and flow are usually not listed under CWA 303d; as you can tell from my  
report, that makes it very difficult to treat the problem. A sediment  
TMDL can be done, such as for Upper White and Simpson HCP, but  
Ecology  
has not shown an active interest at this time.

Good luck on Puget Sound Partnership.

Attached pdf file:

Federal Register 6 May 2008\_lk samm finding.pdf

**From:** Darlene Schanfald

**Date:** 05/06/2008

**Comment:** This is Part 2 of the submission from the Olympic Environmental Council  
regarding our comments for the Topic Forum issues.

Air Operating Permits (AOP). (continued)

AOPs are overseen by two agencies. Ecology has selective oversight of  
some industrial sites; the Clean Air Agencies (CAA) over others. We  
strongly recommend that all AOP's be put under the CAAs in order to have  
consistent laws, oversight and enforcement.

Currently, Ecology's AOP regulations and oversight are so lax that industry  
has little regulation, which is why there is so much air pollution.

Example (and see attachment)

[http://seattletimes.nwsourc.com/html/localnews/2004189039\\_mill19m.html](http://seattletimes.nwsourc.com/html/localnews/2004189039_mill19m.html)

The Director of Ecology needs to direct staff to respond to concerns of citizens, EPA and ORCAA.

Ecology must do the following to satisfy the citizens, to protect their health, and to protect Puget Sound.

A more responsive and transparent Department of Ecology:

- 1) An investigation should be conducted at the Department of Ecology to uncover reasons deficient permits are granted to industries that emit pollutants, and to weed out the root causes of an agency culture that has grown inappropriately cozy with the industry it is meant to regulate, while demonstrating hostility to the public it is chartered to protect.
- 2) Laws require there be adequate reliable monitoring data to prove compliance. Citizen reports of apparent permit violations to Ecology must be recorded, investigated, and tracked, and details of any investigation must be passed on to citizens and/or be made available upon.
- 3) Appropriate fines should be levied. Companies that need air(AOP) and water (NPDES)permits to pollute should put up significant funding for potential cleanup purposes. These monies can be banked by Ecology for future need. Legislation that lets polluting companies decide the type of guarantee it will give the agency should be done away with and proactive legislation should be written that protects the public good.
- 4) As the only agency with the legal right to request additional emissions information from corporations, Ecology must honor data requests from other agencies and not refuse legitimate requests from the Washington State Department of Health and the Clean Air Agencies.

## OVERSIGHT AND ENFORCEMENT

- 1) An enforced responsive and transparent policy for citizen complaints about mill emissions.
- 2) Ecology must conduct more mill inspections.
- 3) Ecology must require reporting of emissions from the ponds on industrial sites.
- 4) Ecology must review mill complaint records monthly to ensure that maintenance problems do not continue for protracted periods of time.
- 5) Ecology must cite and fine industry when it a company is violating the Facility Wide General Requirements (FWGR) #'s 1, 2, and 7.
- 6) Ecology should conduct a study of soils for contamination as a result of contaminated dust/particulates from the mill emissions

## AIR OPERATING PERMIT

- 1) Permits must "allow for meaningful review."
- 2) Permits must require 24-hour access to a real person via phone who can take citizen reports and begin an immediate investigation of problems as they arise.
- 3) Permits must require companies to report to Ecology citizen reports that include investigative information about mill conditions.
- 4) Companies must be required to promptly report all citizen reports
- 5) Permits must require monitoring of ambient air in the surrounding neighborhoods.
- 6) Permit must require complete testing and monitoring of pond conditions.
- 7) Companies must be required to document working order of equipment to Ecology monthly.
- 8) Permits must include a full accounting of fuels used and the contaminants contained in those fuels.
- 9) Permits must require more complete testing of reprocessed fuel oil (RFO) and a full air pollution modeling study on the effects of burning hazardous waste in the air.
- 10) Permits must request testing of the RFO ash composition.
- 11) Permits must require documentation of mill procedures to prevent the ash in company landfills from becoming fugitive dust.
- 12) Determination of waivers for meeting daily emission limits for criteria pollutants should be based on recent data, not data a decade old and reported to Ecology annually
- 13) Permits needs to require companies to meet the additional requirements for an acid rain generator.
- 14) Permit exemption limits need to be minimized.
- 15) There should be direct measurement of the most hazardous chemicals emitted by companies.
- 16) All TRS gases need to be reportable on a twice-daily average to track whether the polluter is increasing emissions at night.
- 17) Ecology must be given records for ALL fuels of ALL types used by companies.

## COMPANIES THAT POLLUTE THE AIR

- 1) Companies should share monitoring and air condition information with the public and public agencies.
- 2) Companies should respond to citizen reports and comments with respect.
- 3) Companies should resolve their emission problems, especially on keeping air pollution equipment in good operating condition.
- 4) Companies should upgrade their equipment; grand fathering equipment should cease.
- 5) Companies should install pollution control equipment throughout their

sites, and assure that the reprocessed fuel oil (RFO) does not have chlorinated compounds and solvents in the fuel.

6) Companies should capture all their pollutants and recycle materials that can be reused.

Adequate monitoring must be included in permits:

Per WAC 173-401-615, All air pollution laws must have adequate reliable monitoring that allow compliance to be judged.

Some State Laws that Ecology has refused to enforce:

Code:WAC 173-401-615

Monitoring and related recordkeeping and reporting requirements.

(1) Monitoring. Each permit shall contain the following requirements with respect to monitoring:

(b)

Impacts to health and property are banned by state law:

(WAC 173-400-040(5):

"The permittee shall not cause or allow emission of any contaminant if it is detrimental to the health, safety, welfare of any person, or causes damage to property or business."

WAC 173-400-040(4)

Air Act: Any person causing odor which may unreasonably interfere with use and enjoyment of property must use recognized good practices and procedures to reduce odors to a reasonable minimum

WAC 173-405-040 (10)

"The permittee shall at all times, including periods of abnormal operation and upset conditions, to the extent practicable, maintain and operate any affected facility, including associated air pollution control equipment, in a manner consistent with good air pollution control practice."

WAC 173-400-105(2):

"Ecology shall conduct a continuous surveillance program to monitor the quality of the ambient atmosphere as to concentrations and movements of air contaminants. As a part of this program, the director of ecology or an authorized representative may require any source under the jurisdiction of ecology to conduct stack and/or ambient air monitoring and to report the results to ecology."

WAC 173-405-072(5)

Š.."Other data: Each kraft mill shall furnish, upon request of ecology, such

other pertinent data required to evaluate the mill's emissions or emission control program".

## PESTICIDES

The attached photos show the results of a snail whose habitat was invaded by Garlon 3A, compliments of the WA State Department of Transportation. Don't let the snail die in vain. Use it as the poster life for what pesticides are causing.

This was incident at Jimmy Come Lately Creek area in Blyn WA. Jimmy Come Lately Creek was just restored for salmon habitat with millions of dollars of federal, state, regional and local governments, including employee time and resources. Yet, the WA State Department of Transportation has no compunction about spraying the area to hold back vegetation along the highway, even though the highly toxic substance will float, one way or another, right into the Creek. Some of the areas sprayed extended down toward the creek and estuary and into the woods on the east side of the estuary. The spray was as close as 10 feet away from the water.

Talk about cumulative affects! Noxious weed programs, county roadside vegetation management, the WA State Department of Transportation, the WA State Department of Agriculture, and the WA State Department of Natural Resources all apply cides, and right into wetlands.

Here's a local example of how cavalier and insensitive to harm government can be. In 1990, Clallam County banned county roadside spraying on ALL rights of ways to maintain vegetation, and have moved to mowing. Yet, a few years ago they turned to spraying the recreation trail, used for health, that runs from eastern Clallam County west to the City of Port Angeles and beyond, and with little to none notification that the trail area is sprayed with poisons that take 6 months to 2 years to have no impact, except that the area is sprayed more than once, so there is always a health and environment impact. This is were pregnant women, women of child bearing age, youngsters, babies are strolled, and pets are walked, as well as where wildlife tries to survive. Trail maintenance volunteers are too lazy to pull weeds along the trail and wanted to use toxins. Well, toxins only make plants resistant to the toxins, so the situation is bizarre and the county personnel does not want to educate the volunteers on the hazards of cides, or become educated themselves. Who suffers, all those using the trail and the wildlife.

DNR aerial sprays. And on and on. Besides killing and maiming wildlife

and eventually humans that are in the way, the poisons end up in surface and ground water; and in soil that blows all around.

OEC does not need to send you reading material. You should already know the issue and have easy access to getting more.

In sum, WA State needs to wean itself off of toxins and work with organizations like the WA Toxics Coalition, the Eugene OR based NW Coalition for Alternatives to Pesticides (NCAP), and the WA D.C. based Beyond Pesticides to plan a strategy to do this. Money will be needed from the WA State Legislature to bring such groups together to plan an agenda which will include the development of safe methods for handling noxious weeds, roadside and forest vegetation, etc., and, most of all, a plan to educate state employees, the medical industry personnel, nurseries, and the public on why they should not use poisons and what they can effectively substitute.

Many people are sickened and die from these poisons, acutely or over time. Many can not even afford to get well because they can't afford medical care. Public health must count, and so must the environment. These must be the two highest priorities to make healthy and keep healthy.

## AQUACULTURE

Volumes of material have been written on this subject. Shamefully the WA State Department of Fish and Wildlife participates in this very toxic industry. NPDES permits are given to this industry by Ecology to pollute. And now DNR is involved.

The farmed fish industry is helping to poison Puget Sound, damaging bottom lands and ruining marine habitat and all aquatic life around these sites. Atlantic Salmon escapees have managed to take over wild spawning streams and move out the wild salmon from their historic sites. Sealice abound in penned fish. Diseases can spread between wild and penned fish. Interbreeding between the escaped penned fish and wild salmon have occurred, further ruining the wild gene pool. The penned fin fish food has enough toxins involved that pregnant women are warned not to eat the fish. Retail sellers don't label these as farmed fish. And NOAA is pushing to fill our waters, in state and beyond state boundaries, with penned fish farms.

<http://www.doh.wa.gov/ehp/oehas/fish/farmedsalmon.htm> lists some of the environmental concerns, yet exhibits no back bone to protect the public.

The West Coast Governors' Agreement on Ocean Health Draft Action Plan

does not hold back on the problems this industry causes.

(<http://query.nytimes.com/gst/fullpage.html?res=9A01E3D81031F93BA15756C0A9659C8B63&sec=&spon=&pagewanted=all>)

Issues of Purity and Pollution Leave Farmed Salmon Looking Less Rosy

By MARIAN BURROS

Published: May 28, 2003

<http://www.fluoridealert.org/pesticides/epage.teflubenzuron.htm>

Teflubenzuron is an acyl urea derivate classified as an insecticide for use in treatment of infestation with sea lice in salmon. Teflubenzuron is admixed with pelleted diet at a level of 2 g/kg. The intended dosage level of teflubenzuron is 10 mg/kg bw administered once daily for 7 consecutive days. The substance is also used as a pesticide on crops. Very few substances are available for treatment of sea lice in salmon....t is likely that the sediments will act as a sink for teflubenzuron and so sediment associated organisms are more likely to be affected by this chemical...

A recent video of penned salmon impacts

<http://www.youtube.com/watch?v=of3URNIMLMk>

Alex Morton presents to Cermaq AGM

Additionally, DNR is leases public lands to geoduck farmers and are, themselves, doing massive sized research in the waters. But the white plastic bags and tubing don't remain stationary, move around, and cause some havoc in the marine system. Too, they reportedly snag birds. This plantings change beach ecology and wipe out other marine life, such as mussel beds. In sum, these plantings and farming are degrading state tide lands.

[http://www.ProtectOurShoreline.org/legal/080326\\_PierceCnty\\_TaylorShellfishDecision.pdf](http://www.ProtectOurShoreline.org/legal/080326_PierceCnty_TaylorShellfishDecision.pdf)

A recent Pierce County court decision and documentation of environmental impacts.

[http://www.protectourshoreline.com/slideshow/POS\\_ShellfishAquacultureConcerns.pdf](http://www.protectourshoreline.com/slideshow/POS_ShellfishAquacultureConcerns.pdf)

A slide show of a geoduck farm on Nisqually Reach.

## FLUORIDE

On August 13, The Lillie Center, Inc., filed ethics charges against the CDC's Oral Health Division and the CDC's director Julie Gerberding for failure to follow the CDC's own ethical code. The charge is specifically

aimed at their failure to warn the public, especially the most vulnerable in the population--"kidney patients, diabetics, infants, and seniors", of the dangers of drinking fluoridated water. These dangers were clearly stated in the National Research Council's report (2006) on fluoride's toxicity, as well as concerns raised by the US Department of Agriculture about the total dose of fluoride people are getting from all sources, including food, toothpaste, mouthwash, dental floss, and dietary supplements, to name a few.

Not only is fluoride added to water which, we now know from a Harvard study is harmful to the development of youngsters 10 years of age and under and other studies regarding infants getting too much, but fluoride is in food and toothpaste, so it compounds the problem. Fluoride then runs down our drains into ground, then surface waters, and into the world of marine life. What is the effect on them?

The Environmental Working Group has added to its web site a long list of articles, etc. about fluoride impacts on humans.

<http://www.ewg.org/featured/222>

Further, from this web site (see

[www.ada.org/prof/resources/positions/statements/fluoride\\_infants.asp](http://www.ada.org/prof/resources/positions/statements/fluoride_infants.asp)):

"It is deeply troubling that children, including bottle-fed infants, will begin drinking fluoridated water without the benefit of the ADA warning and in spite of the many [other] serious concerns [about fluoridation] raised by the National Academy of Sciences last spring," EWG wrote. "Public water supplies should be safe for all consumers, young and old alike." (The letter is available at [www.ewg.org](http://www.ewg.org).)

Last November, the ADA - long a strong advocate of fluoridation, said:

"Infants less than one year old may be getting more than the optimal amount of fluoride" if they consume formula or food prepared with fluoridated water. ADA added: "If using a product that needs to be reconstituted, parents and caregivers should consider using water that has no or low levels of fluoride."

<http://www.msnbc.msn.com/id/23651072/page/2/>

This is an article about people looking for graves at the old Charles Manson sites. They use a detector that finds fluoride because it is expected to be in human bones and not animal bones.

(noted on page 2)

This is a review on fluoride toxicity to aquatic organisms:

Fluoride toxicity to aquatic organisms: a review

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Received 8 March 2002; revised 22 July 2002; accepted 23 August 2002. ;  
Available online 9 November 2002.

## Abstract

Published data on the toxicity of fluoride (F<sup>-</sup>) to algae, aquatic plants, invertebrates and fishes are reviewed. Aquatic organisms living in soft waters may be more adversely affected by fluoride pollution than those living in hard or seawaters because the bioavailability of fluoride ions is reduced with increasing water hardness. Fluoride can either inhibit or enhance the population growth of algae, depending upon fluoride concentration, exposure time and algal species. Aquatic plants seem to be effective in removing fluoride from contaminated water under laboratory and field conditions. In aquatic animals, fluoride tends to be accumulated in the exoskeleton of invertebrates and in the bone tissue of fishes. The toxic action of fluoride resides in the fact that fluoride ions act as enzymatic poisons, inhibiting enzyme activity and, ultimately, interrupting metabolic processes such as glycolysis and synthesis of proteins. Fluoride toxicity to aquatic invertebrates and fishes increases with increasing fluoride concentration, exposure time and water temperature, and decreases with increasing intraspecific body size and water content of calcium and chloride. Freshwater invertebrates and fishes, especially net-spinning caddisfly larvae and upstream-migrating adult salmon, appear to be more sensitive to fluoride toxicity than estuarine and marine animals. Because, in soft waters with low ionic content, a fluoride concentration as low as 0.5 mg F<sup>-</sup>/l can adversely affect invertebrates and fishes, safe levels below this fluoride concentration are recommended in order to protect freshwater animals from fluoride pollution.

[http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_udi=B6V74-476073H-3&\\_user=10&\\_rdoc=1&\\_fmt=&\\_orig=search&\\_sort=d&view=c&\\_acct=C000050221&\\_version=1&\\_urlVersion=0&\\_userid=10&md5=856ff329e5a0308d535aa37ab811b5e2](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V74-476073H-3&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=856ff329e5a0308d535aa37ab811b5e2)

**From:** Rick Dinicola  
**Date:** 05/06/2008  
**Comment:** General comments on the six overriding questions:

Current knowledge: Have we accurately described what we know and don't know about the status of and threats to this topic in the Puget Sound region and the certainty of our knowledge? Have we missed any major documented findings?

Although the first two threats listed under "E" on page 10 of the document are carefully and accurately worded, the document does not consistently differentiate between water withdrawal (water pumped from the ground or diverted from a surface-water source for use) and consumptive use (the portion of a withdrawal that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the water environment). Thus, the threat from current and projected consumptive use appears to be overemphasized, while the threat from non-consumptive use of water withdrawals (wastewater) is under emphasized. For illustration, the consumptive use of combined domestic and public supply in the Great Lakes basin is between 10 to 20 percent of the withdrawals, meaning that 80 to 90 percent of the water withdrawals is not used (<http://pubs.usgs.gov/sir/2007/5197/>). A similar regional-scale study has not been done for Puget Sound, but those Great Lakes basin estimates are typical for humid-temperate climates. Recognizing the difference between consumptive use and water withdrawals (and careful use of the terminology in the document) suggests some novel and potentially effective solutions to water availability issues in Puget Sound, as described below in comments related to "Strategies to continue, add, or change."

The document does not mention that water-use data for all Washington counties and "water-resources cataloguing units" (major river basins) are compiled, estimated, and documented once every five years (starting in 1985) as part of the USGS National Water Use program (<http://water.usgs.gov/watuse/wunwup.html>).

Finally, there are quite a few data available on ground-water status and trends, although the document is correct in that the data are not comprehensive for all areas and has not been compiled for the entire region. To facilitate assembling such data, the USGS recently compiled a bibliography of their publications concerning water resources in Puget Sound (<http://puget.usgs.gov/pubs.html>).

Effectiveness of tools: Have we accurately characterized what is certain and uncertain about the effectiveness of the tools available to address threats to this topic? Have we missed any major documented findings?

The effectiveness of instream flow setting alone as a management tool is over emphasized. It is a good tool for quantifying ecosystem water demand and for establishing a water right to meet that demand, but it does not

facilitate finding ways to meet that demand. The effective element of the newer instream flow rules (those that also limit future water withdrawals and exempt wells) is that they go the next step and apportion available water between the quantified instream and out-of-stream uses.

Current strategies: From a topic perspective, have we accurately characterized what we are now doing to address threats? Have we missed any major programs or projects?

There are three existing national level USGS programs that generate data and understanding to help address many of the identified threats; the National Water Use Program (<http://water.usgs.gov/watuse/wunwup.html>), the National Streamflow Information Program (<http://water.usgs.gov/nsip/>), and the newly initiated Water Census Program (<http://pubs.usgs.gov/fs/2007/3112/fs2007-3112.pdf>). The water census has the objectives to provide citizens, communities, natural resource managers, and policymakers with a clear knowledge of the status of their water resources, data on trends in water availability and use over recent decades, and an improved ability to forecast the availability of freshwater for future human, economic, and environmental uses.

Strategies to continue, add, or change: Given the status of and threats to the topic, effectiveness of the tools available, and current strategies to address threats, have we accurately captured the strategies we should continue, add or change? Have we missed any strategies and actions we should continue, add or change to address the threats (not just good ideas)? What sources have informed your thinking?

Recognizing the difference between consumptive use and withdrawals suggests novel and potentially effective strategies that focus on marginally reducing the 80-90 percent non-consumptive component of water withdrawals rather than substantially reducing the 10-20 percent consumptive use associated with those withdrawals. Possible new strategies to add include reuse of reclaimed (treated) wastewater for streamflow augmentation, and encouraging on-site septic systems (with associated ground-water recharge) over centralized sewage treatment in developing areas. The strategies have obvious links (and potential conflicts) with water-quality forum strategies, which highlight the interconnected nature of effective solutions.

Establishing criteria: Are the proposed criteria for prioritizing topic-specific actions appropriate and sufficient? Are there other criteria to consider?  
No comment

Measuring progress: Have we identified appropriate measures to assess progress toward goals for this topic? Have we missed any key measures of progress?

No comment

## Specific Comments

### Related to Science Question 1

p. 4, 2nd bullet—“declines” should be “has declined” and “exceeds” should be “has exceeded.” This suggestion is not merely editorial. We now manage (retain, detain, infiltrate) stormwater much differently than in the past, so it is not valid to assume that future changes in total impervious area will have the same impact as past changes in impervious area.

p. 5-6, B, “Current Adequacy of Freshwater Supply” and “Data Gaps and Uncertainties”—Although present day low-flows are undoubtedly a limiting factor for some freshwater ecosystems, it is a significant data gap that we have not yet estimated the likely range of natural historic streamflow variation in most Puget Sound basins and subbasins. It is likely that unimpacted “natural” flows were also a limiting factor for habitat function in some basins; there is little reason to expect that aquatic habitat was in the past “optimal” in all basins.

p. 6, “Exempt Wells”, 1st paragraph—It is straightforward to reasonably estimate the current number of exempt wells and quantify their cumulative impact on water supply. The USGS and others have done this in the past, and the USGS is currently doing this in the Lower Skagit, Chambers-Clover, Bainbridge Island, and Chimacum basins, as well as many eastern Washington basins. Albeit, it would be convenient to have such data ready at hand for the entire region.

p. 7, “Data Gaps and Uncertainties”, 1st bullet—There is a Federal program implemented by USGS that has compiled or estimated water use for all Washington Counties once every five years starting in 1985 (see <http://water.usgs.gov/watuse/wunwup.html> ).

p. 8, D, “Water Quantity Data”—In support of past and current ground-water investigations in Puget Sound, the USGS has operated synoptic and short-term water-level networks that cumulatively are quite extensive. As of 1990, we had nearly 19,000 wells records in our publicly-accessible data base that had land-surface information, water level data, and well depth information (reported in our analysis of the Hydrogeologic Framework of the Puget Sound Regional Aquifer System

<http://pubs.er.usgs.gov/usgspubs/pp/pp1424D> ). Most investigations added new data that allowed us to generate some information on status and trends of ground-water resources (for example see p. 39 in <http://pubs.er.usgs.gov/usgspubs/wri/wri944082>). A bibliography of USGS Publications concerning water resources in Puget Sound can be found at <http://puget.usgs.gov/pubs.html> .

P. 9, E—See General Comment above concerning “Current Knowledge” about consumptive use.

p. 9, E, 1st bullet—Given that we do not know what the range of natural historic variation has been in most basins and subbasins, it is likely that some instream flows have been set at levels that are greater than unimpacted flows. Thus, the resource may also be over-committed through what some may perceive as unachievable instream flow standards. I suspect this may not be the most common case, but flows based on “optimum” habitat availability can potentially exceed natural water availability.

p. 9, E, 3rd bullet—Development in the region has not universally led to reduced recharge. Water is supplied to much of the developed areas in the region either from mountain watersheds (Cities of Seattle, Tacoma, Everett, for example), or from pumpage of relatively deep aquifers (Kitsap PUD, City of Lakewood, for example). Irrigation and other non-consumptive uses of these waters has in many cases led to locally increased ground-water recharge and stream baseflow. Mercer Creek in Bellevue is an example, where trends in mean monthly June, July, August, or September flows from 1956-2007 are all significantly positive (see monthly statistics data at [http://waterdata.usgs.gov/wa/nwis/nwisman/?site\\_no=12120000&agency\\_cd=USGS](http://waterdata.usgs.gov/wa/nwis/nwisman/?site_no=12120000&agency_cd=USGS) ). A regional analysis of this has not been done, but the general assumption for reduced low flows following development may be incorrect.

p. 9, E, 6th bullet—Modified stream channels is a secondary rather than a major threat to freshwater availability. It does not fit well in this forum and could be better integrated into the habitat forum.

p. 10-11, G, Data Gaps—2nd bullet—Conceptually, there is hydraulic continuity between surface water and shallow ground-water throughout all of Puget Sound (see Morgan and Jones, 1999 at <http://pubs.er.usgs.gov/usgspubs/wsp/wsp2492> for the conceptual model). There are nuances concerning the nature of the connection, but the connection has been well documented and I am not aware of a report that has shown no continuity between surface water and shallow ground-water.

## Specific Comments related to Science Question 2

p. 18, Flow Setting Strategies—See general comments.

p. 25, A, 1st and 2nd bullets—Consumptive use is far less of a threat than water withdrawal (see general comment on S1). These first two bullets should be phrased as they were in S1:

- Over commitment of the resource through water withdrawals and diversions;
- Projected increases in domestic, municipal, commercial, and industrial water demand associated with population growth

## Specific Comments related to Policy Question 1

p. 29, Source Exchange—Another source exchange technique couples reclaimed water with direct streamflow augmentation. This is what occurs when a sewage treatment plant discharges to a river rather than Puget Sound and it is worthy of recognition as a restoration strategy.

p. 32, Reclaimed Water—Most concerns in the Water Quality forum concern reuse as potable water. In this forum, consider reuse as streamflow augmentation. This is a supply side strategy rather than the demand side strategy of reusing treated water in lieu of withdrawals.

p. 32, Permit-exempt wells—The threat to ground-water supplies resulting from the so-called proliferation of permit exempt wells will likely be limited to specific subbasins with high concentrations of exempt wells, and even in these basins the threat is more directed at seasonal streamflows rather than overall ground-water resources. A good example of an evaluation of exempt well impacts on flow and alternative solutions for the Chehalis River Basin can be found at <http://www.crcwater.org/cbp/20030523xwip.html> .

## Specific Comments related to Policy Question 2

p. 41, Proposed Action 1a—Unfortunately, the science to support instream flow rules adequate to support estuarine function will not likely be mature in the immediate future.

p. 41, Proposed Action 1b—The final sentence accurately describes the effectiveness of the strategy. It would be useful to point this out in the discussion related to science question 2.

p. 42, Proposed Action 2a—The regional assessment of water use and water needs could be substantially leveraged by cooperation and coordination with the existing USGS National Water Use Program (<http://water.usgs.gov/watuse/wunwup.html>) and the newly initiated USGS Water Census (<http://pubs.usgs.gov/fs/2007/3112/fs2007-3112.pdf>). The development of a regional ground-water monitoring program would also benefit from the Water Census, and database development could be substantially leveraged by cooperation and coordination with the existing and accessible USGS National Water Information System (NWIS) database (<http://waterdata.usgs.gov/wa/nwis/nwis>).

p. 42, Proposed Action 2b—Also consider novel methods to reduce the impact of water withdrawals by improved management of non-consumptive water use.

**From:** Tim Gugerty

**Date:** 05/06/2008

**Comment:** AWC Comments on Puget Sound Partnership Water Quantity Topic Forum Discussion Paper

AWC's membership and Board of Directors has adopted a Land Use and Environmental Stewardship Policy Resolution that provides helpful context for our comments below on specific preliminary policy recommendations. Highlights of this Resolution include the following overall statement and principles:

A core function of cities and towns is their ability to plan for, manage and protect land uses and municipal services within their borders. These fundamental activities are frequently the subject of considerable discussion and debate within each community and are undertaken within an increasingly complex array of state and federal laws governing land use and environmental protection.

Washington's cities and towns desire to both maintain and expand opportunities for their citizens to live, work and play in vibrant and healthy communities.

To support cities and town in fostering land use and environmental stewardship, AWC shall work to:

- Maintain cities' fundamental and basic planning and zoning authorities.
- Oppose measures that would encroach upon city authority to protect the public interest, health, safety, and welfare.
- Maintain local discretion as to the intensity and character of growth accommodated within each community.

- Adopt clarifications at the state level to help guide how cities and towns are expected to protect environmental values while providing opportunities for growth and development.
- Encourage the state to work in partnership with cities, towns and other local governments to develop its own strategic plan to help foster healthy and vibrant communities.
- Ensure that federal and state regulatory authorities recognize regional and local difference in how best to apply and mitigate impacts from their programs or activities.

In addition, the following principle from AWC's Flexible General Government Operations Policy Resolution provides helpful context:

- Encourage legislative and administrative solutions that are free of unfunded mandates, and strongly oppose additional state and federal mandates (both legislative and administrative) unless they are accompanied by sufficient financial resources and are compelled by significant public interests.

## AWC Comments on Preliminary Strategies and Association Actions

Strategy 1: Identify water needs or goals for the environment by watershed (WRIA).

- o Because of the breadth and scope of the Partnership's efforts, identifying water needs or goals for the environment needs to be accompanied by an identification of the water needs and goals for providing potable water for people and economic activity.

### Proposed Actions:

1a. Establish instream flows in Puget Sound basins without flow rules. (Immediate)

These include the Samish (WRIA 3), Skokomish-Dosewallips (WRIA 16), Quilcene-Snow (WRIA 17), Elwha-Dungeness (WRIA 18), and Lyre-Hoko (WRIA 19). Consider maintenance of groundwater levels, basin closures, limitations on the cumulative impact of exempt wells, and adequacy of flows to support estuarine function where applicable.

- o Not enough information at this time to substantively comment.

1b. Update instream flow rules that were adopted prior to 1985. (Long-term)  
The science for assessing instream flow needs and our understanding of aquatic habitat and flow relationships has improved substantially since adoption of these earlier rules. Older rules did not include provisions for permit-exempt groundwater management, water reserves for future

consumptive use, and determination of seasonal and year-round closures. It is these management tools that make instream flow rule-making effective at managing impacts of human water use and allocation.

o Not enough information to comment other than a caution that revisiting adopted instream flow rules at a time when numerous basins don't have rules seems questionable. It would make the most sense to identify specific basins where instream flows MOST IMMEDIATELY impact the health of the Puget Sound and then identify strategies including, but not limited to, instream flow setting/adjustments, needed to improve the Sound's health.

1c. Identify flow limitations and targets for fish as part of Salmon Recovery Plan

implementation. (Immediate)

- Develop WRIA-based inventories to determine where low- and high-flow problems occur.
- Establish the relationship between flows and viable salmonid populations.
- Identify salmonid recovery flow targets.

This work should be coordinated with the state effort to set instream flows, salmon recovery planning, and the 2020 Action Agenda as a whole.

o Appears reasonable and critically important.

1d. Assess adequacy of flows for estuarine and nearshore marine habitat including channel morphology and flows, salinity levels, and circulation. (Long-term)

Determine the range of freshwater inputs necessary to maintain healthy estuarine and marine nearshore habitats in Puget Sound. Assess total freshwater inputs to Puget Sound and trends in low- and high-flow inputs over time.

\* How will such efforts complement and support local land use and environmental protection efforts, such as informing choices and decisions during updates of local GMA and Shoreline Management Programs?

1f. Identify benchmarks for flow improvements and evaluate them. (Short-term)

Analyze streamflow trends for all of the major tributaries to Puget Sound and compare to instream flows set by rule. Identify metrics that indicate the benefits of flow improvements. Quantify those benefits for individual species. Collect the data that will quantify the benefits of flow improvements for individual species.

o Sounds reasonable and somewhat complex. How will such information be used to assist decisions made by local, state, federal and tribal decision makers? Are there examples and potential priority responses to such information?

1g. Complete the task within the Puget Sound Salmon Recovery Plan for the development and

implementation of comprehensive basin flow protection and enhancement programs

(PEPS). (Short-term)

- Define the basic elements of a PEP and develop an initial checklist.
- Provide technical assistance and incentives for the development of PEPs in each WRIA.
- Develop benchmarks and performance measures.

o Not enough information/input from cities to comment at this time.

Strategy 2: Identify water needs or goals for people by watershed (WRIA) and promote demand management.

Proposed Actions:

2a. Conduct a regionally consistent assessment of water use and future water needs, and

availability. (Long-term)

- Estimate the quantity of ground and surface water use and future water availability by watershed (WRIA) or regional management area (action area) in the Puget Sound region. Integrate findings about water needs with reclaimed-water planning and stormwater planning.
- Develop an integrated and regionally accessible groundwater monitoring program (including some targeted streamflow monitoring) and associated database.

o Good! What projections are being used to conduct this assessment? We would suggest, at a minimum, use of the Office of Financial Management (OFM) population projections provided to the 12 Puget Sound Counties that are used as the basis of their coordinated GMA planning with their cities.

2b. Promote sustainable water use practices through regulations and incentives addressing water use efficiency, use of reclaimed water, and storage. (Immediate)

- Recognize and support businesses with sustainable water use practices.
- Create and implement water use efficiency rules for all sectors of use.

o Please acknowledge and include information that Municipal Water

Providers with 1,000 or more connections, or who are deemed by the Department of Health as “growing,” must develop and adopt water conservation plans for the system and end users. No such other required efficiency plans are mandated at this time.

- Develop rules for water reclamation that promote potable water conservation.

- o There is a current rulemaking process – was it evaluated and found insufficient?

- Implement innovative water storage projects such as aquifer storage and recovery.

- o This is a VERY vague and potentially expensive to implement suggestion – more details please.

- Expand financial support and incentives for capital investments in water reclamation projects, particularly where there are willing partners and demonstrable environmental benefits.

- o Good idea, but what about expanding financial support and incentives for capital investments in water conservation projects? Please consider including this as well.

Perform outreach and education to address human expectations about water use.

(Immediate)

Conduct a rigorous, regional conservation program that is specifically designed to address human expectations with respect to water availability and use. Increase the public understanding of how decisions about daily water use affect streams and aquatic ecosystems. A significant shift in social behaviors is needed to reduce current per capita water use.

Strategy 3: Assess the effects of climate change on water availability.

- o This is a critically important area of inquiry for cities that are water providers. It’s something several of them are already assessing. It is hoped a broader assessment is coordinated with them.

Proposed Actions:

3a. Model climate impacts uniformly in the ESU. (Long-term)

Project the effects of a changing climate on streamflow over time by applying the model created by The Climate Impacts Group (CIG) at the University of Washington (Palmer, 2007) to all major watersheds in the Puget Sound region. Maintain a database of the information developed from the model that is available (through web access) to resource agencies and water suppliers. Update the assessments every 5 or 10 years to reflect new data and knowledge.

3b. Use the assessments of climate change (from 3a.) to estimate regional and local impacts on water supply, water demand, floods, groundwater, and the ability to meet instream flow requirements and fish targets. (Long-term)

3c. Develop strategies that address the impacts identified in 3b. (Long-term) As part of strategy development, the Department of Ecology will coordinate with the U.S. Mayors Climate Protection Agreement to seek ways to mitigate impacts and increase public awareness.

Strategy 4: Protect instream flows (compliance and enforcement).

Proposed Actions:

4a. Develop water use compliance and enforcement plans in each Puget Sound watershed. (Immediate)

Compliance and enforcement plans need to be coordinated with local watershed planning efforts (where planning is occurring). Compliance and enforcement plans should include a prioritized list of actions, associated budget estimates, and an implementation schedule.

o Please distinguish between “where planning is occurring” and where planning is being IMPLEMENTED. We’d agree compliance and enforcement issues should be evaluated in areas when plans are being IMPLEMENTED, but not where “planning is occurring.”

4b. Establish water masters for each basin to ensure compliance with water code. (Short-term)

Water masters control the use of water within a specific district to which they are assigned, and can help to address the illegal use of water.

o It isn’t clear what this would accomplish to help restore the health of the Puget Sound. Please explain in more detail.

4c. Require metering and reporting for 80 percent of water use (by volume) in all watersheds. (Immediate)

Begin with “fish critical” Puget Sound watersheds (Nooksack, Snohomish, Cedar/Sammamish, Duwamish/Green, Puyallup/White, Chambers/Clover,

Quilcene/Snow, and Elwha/Dungeness). Create a web-enabled database for metering data.

o Not enough information to comment at this time.

Strategy 5: Affirm the social, legal and policy framework for water management.

Proposed Actions:

5a. Develop a process to recognize federally reserved instream flow water rights that is acceptable to federal, Tribal, state and other water interests. (Long-term)

o Agree – not sure where it “fits in” among actions to list for this Agenda.

5b. Consider regulation of exempt wells by general permit, either statewide, by WRIA, or by region (e.g., Puget Sound region). (Immediate)

o Need to review with a broad range of city interests before providing comment

5c. Amend the current water code to streamline the water rights adjudication process.

(Long-term).

Develop a water right adjudication plan and schedule for each basin and allocate the necessary funding. Consider the funding and testing of pilot water courts.

o Agree – not sure where it “fits in” among actions to list for this Agenda.

5d. Develop water supply management plans. (Short-term)

Supply management plans should coordinate area infrastructure and development, water demand and supply projections, storage, reclaimed water, source exchange, strategies to meet water demands and instream flow needs associated with population growth, and drought preparedness plans tailored to each watershed. The scale of these plans is dependent on the area of Puget Sound being addressed. For central Puget Sound, the regional water supply management plan will encompass the three-county region (and most of five WRIAs). For other areas in the Puget Sound ESU, the “regional water supply plans” would take the form of a basin assessment, by WRIA.

Water supply management planning will include reexamining and updating existing water availability determinations and closures to support improved

streamflows and shape strategies to provide water for future needs of people. Use watershed planning information where possible.

o Not enough information and perspectives of various cities yet to comment.

Strategy 6: Address policy linkages.

There is a need to further evaluate and identify ecosystem-wide, integrated management programs. The recommendations below begin to address this need.

Proposed Actions:

6a. Develop a process to integrate land use planning, watershed planning, water quality planning, utility planning and ESA recovery planning.

(Immediate)

Specifically include the linkage between land use planning and water use planning.

o Strongly question that such efforts aren't already underway and linkages in place. This is particularly so in cities – the urban and urbanizing areas within the 12 Puget Sound Counties. There are ways and strategies needed to improve the processes. Please consider specific suggestions on how to do so in urban and urbanizing areas.

6b. Consider instream flow needs during planning and permitting for stormwater and reclaimed water infrastructure. (Long-term)

o Not enough information/city perspectives to comment at this time.

**From:** Rich Hoey

**Date:** 05/06/2008

**Comment:** Below are my comments on the Water Quantity Topic Forum Discussion Paper:

Page 26 - The language regarding the relinquishment provision of the 2003 Municipal Water Law should be expanded to state that water rights certificated for municipal supply purposes based on works having been constructed are considered in good standing. See RCW 90.03.330 - section 3

Page 27 - Reclaimed water infiltration can be an important source of water for flow restoration efforts, especially when the ordinary discharge is direct

to a marine body and impairment is not an issue (as in the case of the LOTT Alliance). This could be further highlighted.

Page 28 - Water Conservation Programs. The language regarding requirements under the Municipal Water Law regarding the water use efficiency rules is not entirely accurate. I suggest you work with Department of Health, Office of Drinking Water to more accurately describe the requirements for municipal water providers. For starters, the requirement for service meters should be highlighted.

Page 32 states that reclaimed water programs have been slow to take hold due to public acceptance and perceptions. I believe this is overblown. In Olympia, the use of reclaimed water has been well received by residents with very few concerns raised. I believe this issue may come more from a fear by utilities rather than a reality among residents. I suggest you not further perpetuate this fear. The biggest barrier preventing reclaimed water programs from advancing is cost, both to produce and purvey it (through separate distribution systems). I agree strongly with a later recommendation for more financial support for reclaimed water projects.

Page 43 - I'm not convinced that a state driven water conservation education program is the answer. The state might be better off supporting local programs that get more to barriers being faced locally. I suggest the state promote community based social marketing efforts, rather than just broad scale education.

Page 43 - under climate change 3.c, the strategies that address impacts in 3b should relate to adaptation rather than CO2 mitigation. Mitigation is important, but the focus for the Partnership has to be on adaptation (to changes in snow pack, precipitation patterns, sea level rise, etc.). Adaptation appears to be under addressed in the paper.

Page 44 - under 5d, water supply management plans - More description is needed on how these efforts would be led and how they would related to watershed plans/watershed planning units.

Page 44 - Much more discussion (and good thinking) is needed on how to better integrate land use planning, watershed planning, water quality planning, utility planning and ESA recovery planning. This is easy to include as a recommendation, but much harder to figure out what to do.

Page 45 - regarding benchmarks - it seems like this is a one size fits all list. I think this needs to be figured out more at a watershed level.

Page 46 - conservation targets were a hot button issue in the negotiation of the Municipal Water Law. It will be extremely difficult to get agreement on this at a regional level.

Thank you for the opportunity to comment. If you have any questions, please let me know.

# PugetSoundPartnership

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**From:** Chris Sato

**Date:** 05/06/2008

**Comment:** I attended the May 5th forum on water quantity. One of the speakers mentioned a matrix that is not in the document but that could be found on your website. I cannot find it. Can you direct me to the webpage that the matrix (or link to it) is on? Thank you.

**From:** Doug Levy

**Date:** 05/06/2008

**Comment:** Water Quantity Paper

I felt this paper was generally well done. Utilities I represent generally agree with a number of the principles and strategies put forth, including those related to conservation, setting of remaining instream flows, addressing exempt wells, etc.

Kent has asked me to convey a policy comment and two technical comments: On the policy side, city staff point out that while water to support streams is clearly an issue, it must be balanced with the need to protect water rights which are necessary to support water systems for cities and water districts serving current and future growth. On the technical side, city staff noted that the Climate Change study used in the issue paper does not have results that can be used for lowland rain-driven stream systems such as Kent's. Instead, the results are more targeted towards snowpack-driven systems. The models have a focus on temperatures, and data shows a definite upward trend. Consequently, general forecasts of snowpack levels are being made, and ranges of flow levels for mountain rivers can be derived. However, those models do not appear to have the capability to forecast long-term local participation patterns (for a lowlands area such as Kent).

One more comment on my end, having attended the May 5 Topic Forum in Edmonds on Water Quantity issues, is that the Action Agenda on Water Quantity needs to remain focused. Some in attendance on May 5 wanted to add tertiary treatment and stormwater and other issues to the water quantity side, which will make it harder and harder to focus on, and finance, a set of strategies that can net real results for the Puget Sound and the tributaries around it.

**From:** Tracy L Fuentes

# PugetSoundPartnership

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**Date:** 05/06/2008

**Comment:** Attached please find a first set of USGS comments on the human health, water quality, and water quantity topic forums. We will provide input on the habitat/land use and species/biodiversity topic this week. We may also provide additional comments on water quantity and water quality. Comments are from Patrick Moran, Rick Dinicola, Tony Paulson, and Rich Sheibley.

Thank you for the opportunity to participate in developing the Puget Sound Partnership's Action Agenda.

Regarding the Water Quantity topic forum, please incorporate USGS Water Science Center publications on the Puget Sound aquifer into your analysis:

Jones, M.A., 1999, Geologic framework for the Puget Sound aquifer system, Washington and British Columbia: U.S. Geological Survey Professional Paper 1424-C, 31 p, 18 Plates.

Vaccaro, J.J., Hansen, A.J., and Jones, M.A., 1998, Hydrogeologic framework of the Puget Sound aquifer system, Washington and British Columbia: U.S. Geological Survey Professional Paper 1424-D, 77 p.

**From:** Rachael Paschal Osborn

**Date:** 05/05/2008

**Comment:** Re: Freshwater Resources Discussion Draft Paper

Thank you for the opportunity to provide comments on the April 14 draft of the Freshwater Resources discussion paper. The Center for Environmental Law & Policy is a public interest, member-supported organization dedicated to protecting and restoring the rivers and aquifers of Washington state. We work primarily in the arenas of freshwater supply and water rights and have an abiding interest in the work of this Forum. CELP congratulates the Puget Sound Partnership for including freshwater resources as a topic of inquiry in Puget Sound restoration planning and looks forward to continuing dialogue and participation in this discussion.

Our comments speak to general issues, rather than section-by-section review of the draft discussion paper. We note at the outset that policies relating to water quantity, supply, and rights are complex and mired in an historic inertia that does not favor restoration and protection of environmental values, particularly instream flows. Given this, we urge the Freshwater

Resources Topic Forum to consider innovative approaches that sidestep traditional barriers to restoration and focus on solution-oriented activities. Our suggestions on how to develop such an approach are set forth below.

(1) The “preliminary strategies and actions” are inadequate to address and resolve instream flow deficiencies.

To cut to the chase, and with respect for the substantial efforts of the freshwater core team in creating this discussion draft, the proposals to resolve habitat and water use problems are insufficient. Details on various issues are provided below. Briefly, we note that:

- Instream flow rulemaking, under current processes, is inadequate to restore flows. This is so because the rules grandfather existing rights and fail to control future water use, including exempt wells and enforcement to prevent illegal use. Reliance on these rules is seriously misplaced.
- Watershed plans are too inconsistent and water-supply focused to serve as a reliable source of information or planning to restore Puget Sound freshwater resources. Local watershed planning units will not support enforcement against illegal water use.
- Metering and reporting of water usage data must be much broader than recommended.
- Generally speaking, “affirming” the status quo (i.e., the “social, legal and policy framework for water management”) will lead to status quo. New concepts and innovation in water management are needed if we are to crack this nut.
- That said, we agree with the proposal to recognize tribal reserved rights.
- We disagree with the notion of a “general permit” for exempt wells, which would allow continued proliferation of such wells regardless of impacts on water resources.
- Water Supply Management Plans – is it possible to move out of the planning context into implementation, or are we forever consigned to stakeholder meetings that fail to achieve action on streamflow restoration, while humans (through inchoate, illegal and permit-exempt wells) continue to take water out of the system?

In sum, and again with regard to the expertise and commitment of the report authors, the proposals for action are not sufficient to establish targets for and implement instream flow protections that will be effective in protecting freshwater and associated marine resources.

(2) A paradigm shift is needed for instream flow setting.

One of the most surprising aspects of the paper is the fundamental

assumption that Washington's WRIA rulemaking process is the primary mechanism by which instream flows in Washington may be protected (see Strategy 1a & 1b, p. 41). As discussed in Paragraph 2 below, the state's instream flow program is possessed of many flaws that should be, but are not, identified or discussed in this document. This problem is acknowledged in the report, which notes that "regulatory instream flow setting can protect instream resources from future allocation, but because they are junior rights . . . they cannot be depended upon to keep a minimum amount of flow in a stream when a senior user is withdrawing water."

Because of these flaws, it is critical for the Forum to consider "re-prioritizing" instream flow protection to ensure that the flows necessary to protect and recover salmon (and other freshwater resources) are "set and met." The paper alludes to this idea at pages 18-19, where it discusses "environmental flows" and the concept of "upside-down water rights," that is, first determine how much water the river needs, then make whatever quantities remain the limit on out-of-stream allocations. While it is more ambitious than necessary to discuss reform of the state water code, it is critical that this paper acknowledge, at the policy level, that Washington's minimum flow statute is inadequate to protect flows. The science discussion impliedly makes that acknowledgement, but the policy discussion does not.

Beyond acknowledging the problem, the Forum needs to recommend a solution. The state of Washington is not irrevocably tied to instream flow setting that de-prioritizes river protection. As we see with ESA-driven habitat conservation plans (p. 21), and water quality-driven 401 certifications (p. 20), it is legal and possible to set instream flows that are protective of instream resources and require private parties to meet those flows.

CELP encourages the Forum to discuss and recommend a "paradigm shift" in how instream flows are established and protected in Washington. Otherwise, the status quo will prevail and it will simply not be possible to achieve the PSP goals to address threats, at an ecosystem level, to the freshwater and associated marine resources of Puget Sound.

(3) The WRIA-based instream flow setting process not an appropriate vehicle for "policy response" to achieve protection of freshwater habitat.

The WRIA-based instream flow rulemaking process has a number of very serious flaws. These include:

- The WRIA rules are not based on adequate science. The rules that were adopted in the late 1970s and early 1980s were largely based on

compromise, rather than credible science. There is some allusion to this in the paper, but it needs to be more explicit.

- Just as problematic, the recent round of rulemaking is also failing to lead to scientifically sound instream flows. The flow regimes set forth in these rules (1) generally do not protect or even address the variability necessary to maintain healthy streams (which the discussion draft itself notes is necessary, see pp. 3, 18, 19), (2) do not establish a recovery standard adequate to meet Endangered Species Act habitat requirements, (3) allow for reserves for future out-of-stream water use that have no scientific basis, i.e., the reserves are based on arbitrary percentages regardless of habitat degradation or limitations, and (5) are, in some watersheds, based on compromise rather than science.
- The devolution of authority over streamflow setting, from the state to local entities, virtually ensures compromise on flows. In some areas, notably the Quilcene-Snow and Dungeness watersheds, the process of instream flow rule-making has become so controversial that it has ground to a stalemate. It is hard to imagine that credible, habitat-protective flows will come out of this process.
- The WRIA rules place instream flow protection at the bottom rung of the ladder of priority in the water rights system. As a result, all previously issued out-of-stream water rights (including municipal inchoates, discussed in Paragraph 4, below), may be exercised to the detriment of stream flows. While the discussion draft acknowledges that many instream flow targets are not being met (p. 7), it nonetheless recommends that the policy solution is to adopt such flows in all watersheds. This is nonsensical.
- A related problem is the assertion that WRIA-based instream flows are acceptable because they will control future water right permitting (see pp. 19, 27, 30, 31, 40). First, this is incorrect because the new generation of rules now explicitly reserve water for future out-of-stream use. Second, and more importantly, with hundreds of thousands water permits and claims already on file, it is simply too late to rely on these rules as protective of streams. Their future effect is irrelevant to the problem that has led to the creation of this very Topic Forum.

The recommendation (p.4) to set new flow rules fails to acknowledge the problems described above. Updating rules alone will not address problems of over-allocation and degraded instream flow. CELP recommends that the discussion draft be amended to fully describe the inadequacies of the current instream flow rulemaking program, and recommend alternatives that will result in effective change.

(4) Watershed plans do not necessarily provide sound information relating to water supply.

The discussion draft repeatedly references the WRIA-based watershed plans as a source of information and potential basis for water resource management (see pp. 6, 7, 33). In our research, CELP has discovered that the content of many WRIA plans do not meet even the basic statutory requirements set forth in RCW Ch. 90.82 and are inadequate as a source of information concerning water budgets and future water supply requirements. We caution that the Forum should not engage in blanket reliance on these plans, but should evaluate them on a case-by-case basis to determine whether the information they contain is reliable.

The WRIA committees (watershed planning units) that create the watershed plans are often dominated by local water users who are interested less in protecting fish and more in allocation of new water rights for out-of-stream uses. WPU are often not representative of all interests of the community. Tribes decline to participate for their own legitimate reasons, and environmental and citizen interests lack resources to participate in lengthy (years long) processes. (Most WPU participants are paid agency staff.)

This problem is compounded by the blanket statutory statement that watershed plans constitute an “expression of the public interest” regardless of content.

The report’s conclusion that “most plans address data gaps” is unsupported. The notion that “local recommendations could form an important foundation for a regional approach to freshwater management” (p. 28) is not supported by the plans themselves. Caution should be exercised in this arena.

(5) The Municipal Water Law is an impediment to protection of instream flows.

The discussion draft references the “municipal water law” (p. 26) but fails to acknowledge that one key element of the MWL, set forth in RCW 90.03.330(3), validates large “paper” water rights. These paper rights represent water that is currently flowing in rivers and hydraulically connected aquifers. As municipalities grow into these rights, the additional pumping will not only exacerbate instream flow deficiencies, but will also consume water that has been restored to enhance stream flows. Inchoate municipal water rights represent a major, destructive impediment to restoration of freshwater habitat, a problem that should be acknowledged and discussed in the discussion draft.

(6) The term “human demand” needs re-definition.

The discussion draft accepts as fact that human water needs are not now being met, nor will be met in the future. It is unclear where this assumption comes from, although there is reference to water system plans and watershed plans (pp. 28, 31) as sources of information. Such documents are prepared by water purveyors and often contain self-serving statements about future water need. This is particularly true right now, with the “municipal water law” in the midst of legal challenge, motivating water purveyors to show that all unused (paper) water rights will be needed in the future. We are concerned about the PSP goal that current and future water supplies support “freshwater and terrestrial food webs AND human uses and enjoyment within all watersheds draining into the Sound” (p. 25). This is an ambitious and potentially unrealistic goal – water supply is finite and it may be that we cannot “have it all” as the goal suggests.

It is important to distinguish between human “need” for versus “enjoyment” (p. 25) of water. Humans need 50 liters of water per day for drinking and sanitation purposes. Beyond that quantity, demand is elastic and responsive to methods of control. CELP recommends that the PSP Water Quantity Forum take a very close look at quantification of future out-of-stream water demand before predicting that problems exist or will inevitably occur in meeting that demand.

(7) The discussion draft muddles the issues of providing for freshwater habitat protection and providing for future human use.

A related problem arises from the intertwined discussion of measures necessary to provide for restoration and protection of instream flows, versus satisfying human water demand in Puget Sound (see, e.g., p. 22 (Section S2(D))). These are two very different, largely competing objectives that will be achieved through differing measures and activities. The discussion draft, if it is to address both of them, should distinguish between the two goals in all aspects of the paper, and where appropriate, explicitly describe the trade-offs between one and the other (as for example, occurs with the WRIA rule reserves).

(8) Water pricing is the most effective mechanism to control demand, but is not addressed in the discussion draft.

If you wish to encourage people to use less of a resource, make them pay for it. The higher the price, the less they use. The current situation with gasoline prices reveals the truth of this statement, with increased fuel prices leading to increases in transit ridership and demand for fuel-efficient cars.

As it goes with gasoline, so it goes with water. Increased pricing is perhaps the most effective method to control water consumption. Yet the discussion draft fails to acknowledge or explore this important mechanism as a demand management strategy.

(9) Conservation is a key mechanism to address out-of-stream water deficiencies.

The discussion draft acknowledges that water conservation is an important step to take in resolving water supply issues. CELP agrees, and believes the topic should receive even more prominence in the document. The draft correctly notes that the water conservation element of the municipal water law (i.e., implementation of the DOH water use efficiency rule) will not lead automatically to actual conservation because the rule contains no mandatory targets (p. 28), and we would add, purveyors are allowed to self-select their level of compliance. CELP strongly endorses the paper's proposal to adopt water conservation standards into rule (pp. 42, 46), and we call for a recommendation for legislative support (both programmatic and budgetary). Water conservation is not just about changing "behaviors" (pp. 32, 43), but requires concerted, strategic effort.

(10) Ambient groundwater monitoring is a necessary step to understanding water supply issues.

CELP endorses the recommendation that ambient groundwater monitoring is necessary (pp. 8, 9, 42 (Strategy 2b)). We note that a bill that received hearing in the 2008 legislative session, HB 2477, proposed the creation of a groundwater monitoring program. While the bill did not pass, a small (\$217,000) appropriation to conduct a gap analysis did survive into the supplemental operating budget, only to be vetoed by Governor Gregoire. In any event, important support documents and key testimony were offered at hearings, and may be useful to the Forum to establish the basis for recommending a groundwater monitoring program, which received bipartisan support in the legislative process. CELP also encourages the Forum to distinguish between monitoring groundwater quantity (rather than quality) in its discussion.

(11) Enforcement against illegal use is not adequately discussed.

The discussion draft notes that regulation of illegal water use holds potential for improving water supply issues. This is an understatement. The Department of Ecology rarely enforces against illegal use of water, even

while congratulating itself on its record of enforcement in water quality, air quality, toxics and oil pollution arenas in the quarterly agency report on enforcement orders and fines.

Further, the proposal to rely on local watershed planning groups to implement compliance and enforcement programs is not realistic (p. 43, Strategy 4a). Most of the plans created by these groups call for the state to undertake enforcement. Resources for such activities are not available locally and would not be supported locally.

The discussion draft makes the common error of assuming that water rights enforcement is necessarily tied to the inability to determine validity of water use claims, leading to a recommendation that the state undertake adjudication of water rights (pp. 30, 32, 44 (Strategy 5c), 45). If we wait until the state has adjudicated the validity of all of the claims filed in its water claims registry, the salmon will be long gone, the glaciers receded and possibly even returned.

The “fix” is not found in the courts, but in the legislature, where restoration of Ecology’s ability to enforce against claims (and the budget to do it) may be found. In addition, a quantity-based tax or fee on water use claims would go far to clean up the database and reduce the number of rights claimed to Puget Sound streams and rivers. Again, pricing is key.

(12) Metering is already required in fish critical basins.

CELP agrees that metering of 80% of water rights in all streams that support salmon is a good idea. We’d also point out that this is a statutory requirement, and has been accomplished via a court order obtained in a lawsuit brought by CELP and other environmental groups, followed by concerted monitoring of Ecology’s response to the court order.

We would encourage the Forum to build on this success by recommending 100% metering in salmon-critical watersheds, including groundwater withdrawals, permitted and exempt, that remove water from aquifers that are hydraulically connected to streams. We would encourage the Forum not to establish milestones or goals that have already been reached (e.g., Strategy 4c at p. 43) and would lead to a false impression of accomplishment by the PSP.

(13) Exempt wells must be controlled.

The discussion draft recognizes that exempt wells are an uncontrolled factor in water supply development, and that these wells undermine effective water

management (see pp. 6, 7, 19, 26, 32). The paper should go further and note that exempt wells can cause substantial adverse cumulative impacts on environmental resources, particularly in smaller stream systems. The paper should also record that proliferation of exempt wells is not inevitable, but may be controlled under prior appropriation principles (i.e., citation only to the exempt well statute, without reference to case law that further defines the exemption is insufficient to define the scope of the problem and possible solutions). The proposal to punt to Ecology (Strategy 3b, p. 43) does not resolve the issue. Further, simply “regulating” exempt wells (Strategy 5b) is not a sufficient control.

(14) Dams are not sufficiently identified as a source of instream flow problems.

The discussion draft does not identify dams as a source of disruption to sustainable flows (see, e.g., p. 40). There are dams on rivers throughout the Puget Sound basin and the lack of discussion of the impact of dams on instream flows is a substantial deficiency in the report.

(15) Robbing Peter to pay Paul.

The discussion draft contains a number of proposals for solutions that involve taking water from one system to enhance another. The draft should contain cautions about such approaches including “pump and dump” (p. 29) and the mitigation program for the Deschutes basin in Oregon (p. 30), which allows for transfer of mitigation of water from one sub-basin to another without regard to impacts to the sub-basin of origin.

In conclusion, CELP thanks you for the opportunity to provide these comments. We congratulate the Freshwater Resources Core Team on its willingness to tackle this important and difficult issue and would be happy to provide additional information and assistance in the future.

**From:** Peter Beaulieu

**Date:** 05/05/2008

**Comment:** The purpose of this note is to call your attention to three resources that should help in developing a Puget Sound management strategy and initial action strategy.

First, at the Edmonds forum one of the three breakout groups (Angie Thompson) noted the significance of the statewide Chelan Agreement as a

model with positive and negative lessons regarding river basin management. Part of the history is that in 1990 the Legislature choked on water resources reform and deferred to an external and collaborative initiative, well underway, involving caucuses for each of the stakeholder groups. There must be a file on all of this, and a reader friendly brochure, but my contribution at the time was to prepare a detailed paper (including a “wiring diagram” for how the process was to work), which I gave to Angie. The Agreement established a dialogue between statewide issues (a structured panel of all the caucuses) and a sequenced second layer of WRIA level planning drills, beginning with pilot basin to be identified in Eastern Washington and another in Western Washington.

My paper was “The Chelan Agreement: Co-responsibility in Water Resources Management,” for the 33rd Annual Conference of the Western Social Science Association, Reno, Nevada, April 24-7, 1991 (18 pages).

Second, I am mailing to you a piece of testimony I delivered to a review committee for the Puget Sound Water Quality Authority. I find that in late 1989 a Review Committee conducted public forums as part of a sunset review for the Authority, before it was folded into the Department of Ecology. My written staff level comments should arrive at your desk on May 7 or 8, but will be mailed today (May 6). There must be a file somewhere in Ecology with a final report incorporating many probably diverse views.

Look for my “Comments before the Puget Sound Water Quality Authority Review Committee,” October 17, 1989 (8 pages).

Third, in the late 1980s (and prelude to item #1, above) the Legislature undertook an extensive and objective fact-finding mission with regard to all of the water resources issues addressed in you water supply issue paper (and more) and discussed at the Edmonds forum. The findings came in at least one information rich volume (I think remember additional supporting volumes). There probably were a set of recommendations, and based on some of what I heard at Edmonds, much of this assessment is probably still current.

From my Chelan paper (above), I can identify this gold mine as: Shupe, Steven and Heidi Sherk, Washington’s Water Future: The Report of the Independent Fact Finder to the Joint Select Committee on Water Resources Policy, July 1988.

**From:** Glen Hemerick

# PugetSoundPartnership

our sound, our community, our chance

**Date:** 04/29/2008

**Comment:** [http://blogs.kitsapsun.com/kitsap/waterways/archive/2008/04/water\\_raises\\_concerns\\_on\\_bainb.html#c2547536](http://blogs.kitsapsun.com/kitsap/waterways/archive/2008/04/water_raises_concerns_on_bainb.html#c2547536)

"BI Survey Shows Residents Concerned About Water" i live in olalla; i have a well; i supply water to neighbors via pipeline. i store all rain underground by planting in rows in little ditches that slope downhill two feet every 100 feet. my daughter was rototilling the little ditches today. if you are interested in paralytic shellfish, let me try to help without charge; but i would appreciate an offer of 10 minutes help.

[http://www.sas.org/tcs/weeklyIssues\\_2005/2005-08-26/backscatter/index](http://www.sas.org/tcs/weeklyIssues_2005/2005-08-26/backscatter/index)

**From:** Ruth Schaefer

**Date:** 04/24/2008

**Comment:** The habitat paper states that river levees focus stream flow, increase localized velocities, restrict floodplain access, reduce sediment storage and recruitment, alter substrate sizes, and reduce wood storage.

I suggest that you add "revetments" to this impact category. The major difference between a levee and a revetment is that levees are bordered by floodplain areas that were inundated more frequently prior to levee construction. In contrast, revetments are bordered by high ground that is less susceptible to flooding. Levee structures include a raised prism of fill material intended to contain floodwater, while the height of revetments typically matches the elevation of adjacent land. Older levees and revetments both include toe and bank armor intended to prevent lateral channel movement, and thus both are intended to resist bank erosion and prevent lateral channel movement, and have the above-described deleterious effects on riverine ecosystems, with the exception of cutting off rivers from their floodplains. Levees have a much greater impact on restricting the movement between fluvial channels and floodplains than revetments do.

**From:** Peter Beaulieu

**Date:** 04/22/2008

**Comment:** The following suggestions are somewhat of a patchwork rather than comprehensive, and do not duplicate points already made in the Partnership's five initial draft topic papers. They consist mostly of one retiree's reminiscences (!) of specific examples possibly helpful to the Partnership in its new work, and hopefully carry forward the dedicated work

of many who have come before. (The Partnership is to be specifically commended in its enabling statute and personnel connections for building directly on the sustained efforts of the Puget Sound Action Team.)

Overall, the content of the Partnership's draft papers, their content and tone, and the reader friendly structure for response are all to be most highly commended. This is good work, and even a pleasure to read.

Thank you for this early opportunity to contribute.

## THE BASELINE PROBLEM STATEMENT

Find opportunities to tie pollutants to large scale or widespread chosen practices, when this is more instructive than a less direct tie to demographics. (The governing state statute is the Growth Management Act of 1991, which mandates "management" rather than an abstract ceiling.)

Examples:

- The Water Quality paper reports that in recent years polynucleated aromatic hydrocarbons (PAHs) have increased. PAH deposition rates dropped precipitously in the 1950s as coal burning was replaced with other home heating systems. The recent increase (still far below historic levels?) must be presented in this larger context, and then traced to correctible sources.
- As a second example, the Interstate 405 Corridor Program and the earlier I-90 bridge crossing claim a net decrease in runoff even as transportation capacity is increased. This outcome is due to design improvements such as culvert improvements for both old and new facilities (case study for retrofit discussion, pp. 16, 29). The cleanup burden must not be placed fully on the incremental increase in Sound area activity (a case study is the rate structure attached to the Brightwater Wastewater Treatment Plant proposal in King/Snohomish County. A balance was attempted between the financing of new treatment capacity and stormwater runoff.).

What is the more researched and current timeline information for various deposition rates (not only levels in the water column)? In 1983 the deposition rates for Puget Sound as a whole (not for localized sites) for several contaminants were reported to have declined in recent years.

Examples (affects p. 32):

- hydrocarbons reduced by 50 percent since 1950,
- Chlorinated compounds by 30 to 50 percent since 1960,
- Mercury by 20 percent since 1960 (The Habitat – Species Diversity paper reports that airborne mercury is on the rise due to emissions in Asia, p. 5),
- Arsenic by 15 percent since 1960 (Tacoma Asarco Plant closure);
- Lead by 10 percent since 1960.
- Holding constant in 1983 were silver, copper, cadmium.

## STRATEGY: OVERALL

Further develop the insight that optimum ecological restoration is not the same as homogeneous protection at all geographic scales. That is to say, it is a smart move to protect the most valuable and vulnerable areas (equivalent examples: Mountain to Sound Greenway, rainforest preserves established in the Amazon rainforests, and even National Parks).

Puget Sound examples (finer grained, but from within our urban region):

- The approach used for offsite mitigation in the Cross-Base Highway Corridor Program might offer a kind of template. The documented strategy included identification of redundant candidate project areas offsite (each with unknown availability), and for each investigates public and private long-term management options, etc.
- The incorporation of an Environmental Program into the Record of Decision for the I-405 Corridor Program (making such actions obligatory), and which selects (with directly involved water resource agencies) cost-effective mitigation sites for runoff volumes from within entire sub-basins of the WRIAs, rather than only from within the project corridor. (The transportation Corridor and sub-basin maps – in the Green and Cedar WRIAs -- are superimposed. In its complexity and size – 240 square miles – the I-405 Corridor is conceptually equivalent to a WRIA plan. The transportation and WRIA fiefdoms worked together.)
- Supporting the proposal for protection of pristine areas (Water Quality paper), is the example of Seattle Water Department consolidation of Cedar River Watershed ownership. This was done over two decades of trading property inholdings for acreage at other locations in the Cascades (and as originally proposed in the 1983 Comprehensive Water Supply Plan, another good model of complex resource management.)
- On the two-way relationship between water resources and land use, notice that the Snohomish Valley is protected by the urban growth boundary, while

the earlier Green River Valley is not. Much of the difference turns on a seemingly technical detail, the fact that under federal guidelines urban development in the flood plane counted as a project benefit in the 1950s (hence the Kent-Auburn warehouse and Boeing complex), but not for any proposed dam on the Snohomish tributaries as under the Snohomish Basin Mediated Agreement (hence dairies and cattle pads).

## STRATEGY: GEOGRAPHIC FRAMEWORK

Thinking backwards from implementation options to the way we frame the Puget Sound problem statement at the start, how might we begin early to cross-connect problem formulations to real implementation options? How can we think right-brained about the total package?

- Without muddling the more linear and legitimate Partnership approach, develop flexible technical capabilities, i.e., provide a standardized GIS capacity, a shared ecosystem map overlay system displaying (a) the Puget Sound Basin, (b) the Water Resource Inventory Areas (WRIA) boundaries and plans, and where available (c) 1960, 2000 and 2040 data sets (e.g., now available Puget Sound Regional Council maps), etc.
- For each sub-basin; the Geographic Information System (GIS) capability must be transparent to GIS for Water Resource Inventory Areas (WRIAs), to local land use GIS as well as habitat GIS (which is already proposed in the Habitat paper, P.20), and to stormwater (Water Quality, p. 30).
- The logic of realistic and effective implementation requires that the Sound be treated equally as a basin unit and as a collage of sub-basins, rather than as a unity nuanced only a bit with local detail. Specifically, priorities and an action agenda must be decisively developed in two distinct categories: overall, and sub-basin with some shared elements. The layered look is in. For example, and affecting both categories, what do we know about tidal circulation patterns and basin and sub-basin flushing cycle?
- The purpose for GIS compatibility and transparency is twofold: technical analysis and integration as already proposed, but also layered visibility of interrelated issues for the direct attention policy boards otherwise confined to their fragmented agency mandates and “radar scopes”. An excellent display would be a view of future land uses, showing those small sub-basins where future growth will violate the general thresholds of more than 12 percent impervious surface, or less than 65 percent forest cover (p. 8).
- This reader believes that the regional agenda must consist mostly of a

fabric of sub-regional actions. GIS transparency is encouraged, for example, to help ensure integration of land use and water resources planning (p. 31), however this technical tool must not take on a life of its own, obscuring critical caution contained in the Water Quality text, namely, that pollutant runoff is highly variable within land use classifications (p. 7). A focus on gusty and clear performance measures is probably more consistent with the state Growth Management Act and more to the point than a population lid as seems to be implied in the Habitat paper (pp. 63, 65).

More rumination:

- Develop a map strategy. Replace or greatly supplement the King County pre- and post-1990 Map in two ways (Water Quality paper). The suggestion here is to move in the same direction, but in a more informative and comprehensive way. Why only King County, and why pre- and post- 1990? First, use the Puget Sound Regional Council maps for the four-county sub-region for 1960, 2000 and 2040, supplementing these as possible for the remainder of the Puget Sound basin. Second, superimpose the pre- and post-map onto the mosaic of WRIA basins. A technically consistent and shared map strategy might or might not imply a centralized control of maps and information (as is proposed in the Habitat paper).
- Superimpose the Conservation Trust Map (Habitat paper) onto a mosaic of WRIA maps and onto a jurisdictional map. This will give a better look at natural systems and at local government implementation aspects.
- Systematize the maps. We are challenged by the fact that Puget Sound basin activities were superimposed on a standard composite of WRIA boundaries (not yet labeled as such) in all of the topical volumes of the federal/state mult-agency Puget Sound and Adjacent Water Study (PSAWS), completed in 1971 and in the days prior to GIS(!). With this basinwide context, additional WRIA level maps can then be lifted out for sub-basin attention without fragmenting the unified effort. This split-level approach has been done before.
- Marine mapping. Show what we can about Puget Sound tidal behavior and sedimentation issues. A very preliminary effort is provided by the 1983 Puget Sound Water Quality Conference (see footnote 3, Proceedings, above). Of ten outgoing tidal units heading north from Seattle, seven reverse with the next tide to return from a point south of Port Townsend, with six of these then continuing so far south as to mostly encircle Vashon Island clockwise (four units), or to move south even through the Tacoma Narrows (two units). Supports Water Quality paper, p. 33).

## WATER SUPPLY PAPER

A conservation technique linked to instream flows might involve some new challenging strategies. The need will increase as seasonal storage enters a cyclical dry period and 1-in-10 drought years come in bunches (I recall three such years in the single decade of the 1970s.) I recall that engineering design standards, an intricate art form in themselves, reflect the earlier wet cycle.

Examples:

Strategic conservation as proposed in 1983 by the Director of Ecology: “I have given this problem some thought and I have an idea. For example, suppose a farmer makes improvements in efficiency and leaves a portion of his or her water in the stream. In such a case, the conserved water left in the stream would be over and above any minimum instream flow requirements and could, therefore, be recalled for agricultural use in a low water year without decreasing protection of instream values. This would, of course, require some modification of our water laws, but it is worthy of further consideration if we are to provide an incentive for conservation.”

- Another proposal, with a range of options, was researched for the Yakima Basin in the 1980s. Also difficult, the proposal was for a water bank of tradable water rights especially in low flow years. In a similar vein, my memory is that a major water consumer in Tacoma (65 mgd) benefited from low costs (water rates), but with the contractual provision that these rights are interruptible during low flow years.
- State law confines water planning to the ever separate natural drainage basins. There are good reasons for this, and yet the Puget Sound Basin is a collage of WRIsAs (sub-basins in this larger ecosystem context?). Resource management complexities might raise again the question whether interbasin approaches (such as supply system interties) are optimum, especially in urban areas where ecosystems and supply surpluses, deficits and options, are unevenly distributed. (Drawing from a different context of transportation and money pots, the “subregional equity” philosophy chiseled out by Sound Transit, all within a more flexible statutory language, probably should not be duplicated.)
- Some work needs to be done on streamflow data. The Partnership needs to think about this carefully. Water Supply stream flow data must be seasonal as well as annual if it is to touch such concerns as the cycle of one-in-ten year droughts, Salmon spawning needs (Habitat, p. 6), etc.

A key infrastructure issue -- partly ameliorated by interties (as in Federal Way linking the Seattle and Tacoma systems) and conjunctive use (as between groundwater and surface water in the greater Tacoma area water supply system, and between the Tolt and Cedar surface systems in the greater Seattle area water supply system) -- is the fact that surface storage in the Puget Sound Basin WRIAs is single year, not multi-year. In view of cyclical precipitation patterns or even possible global warming, do we need more surface storage in the Puget Sound basin, simply to maintain current capabilities?

- Above the summertime minimum instream flow regime determined for each WRIA, both instream and out-of-stream needs are vulnerable to the art form of guessing each year how much spring flood water to spill, how early or late the winter rains might come, all of which is interactive with variable snow packs.
- The statewide Chelan Agreement (1991) engaged as caucuses all claimants to streamflow, both instream and out-of-stream, and worked at both the state level and the WRIA level. This effort might have produced some useful results; I have lost touch. I do recall, for Partnership attention, the precipitating event leading up to the Agreement. Over the years all of the parties had worked their finely spun issues up to a point of ripeness that called for the services of a luminary from the legislature (the summit was held in the Husky Union Building at the University of Washington). The light finally went on when all of the putative negotiators realized that none of them had the authority to reconcile their differences because of their respective and more or less mutually conflicting statutory authorities.

**From:** Mike and Liz Fessler

**Date:** 04/20/2008

**Comment:** I've been ask by a committee here in Port Ludlow to top trees on my property for my neighbors. I have tired to reason with this ACC committee to understand the nature of my property. First, I live on a bluff with a slope subject to flooding from my neighbors. The bluff, I understand is already saturated with water. The drainage committee has not installed a drain here for our protection. Along with that our sewer line for the entire street runs along this bluff.

Liz and I are shoreline stewards. Can anyone help us with this matter.

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**From:** Peter Beaulieu

**Date:** 04/20/2008

**Comment:** Dear Martha:

At either the May 1 or May 5 (2008) Workshop I will hand deliver to you three short and early documents related to my memorandum of April 22, 2008 sent by e-mail. Two of these papers relate to ESSB 5372 Section 8:3 which calls for a delineation of “action areas” based in part “upon the characteristics of the Sound’s physical structure.” The papers support needed action area boundary refinements for saline Puget Sound.

Respectively, the documents (1) show at least crudely the tidal circulation patterns of Puget Sound as a whole, (2) differentiate between Sound waters as a whole and two principle and localized problems of toxic hotspots and bacterial pollution from non-point sources, and (3) segment the presumed Puget Sound unit into distinct reaches divided by seafloor sills. More recent research must be available from the Department of Oceanography or from the former Puget Sound Water Quality Authority (1983-1990).

(1) Schematic of a water parcel’s path in the Central Basin of Puget Sound, from Dr. Robert Stewart, NOAA and Institute of Marine Studies, University of Washington, in Proceedings, Puget Sound Water Quality Conference, Puget Sound Regional Council, 1983, pp. 108, 109 (bi-national with 4-500 participants, and co-sponsored by 26 public and private institutions).

(2) “Large Scale Mass Fluxes in Puget Sound: Implications for Water Quality Management”, Robert Stewart (Institute for Marine Studies), with Curtis Ebbesmeyer, Pieter Booth and Edward Cokelet (NOAA), c. 1984 (Appendix figures 3a – Geographic Definition of Advective Reaches, and 3b – Plan-View Schematic Diagram of Puget Sound Mass Transport Model, and separate depiction of reaches and connecting mixing zones).

(3) Testimony to Puget Sound Water Quality Authority, c. 1986, by Alyn Duxbury, Institute of Marine Studies, University of Washington, profiling Puget Sound and pollutant behavior within the ecosystem(s), e.g., residence time of water in Puget Sound is 150 days, and particulate residence time within the Sound is a lesser ten days average (before settling).

I will also include (4) a short paper touching on the Lake Washington “cleanup” as significantly aided by serendipity bio-manipulation as part of adaptive management: “The Great Lake Washington Detective Story,” Feb.

15, 1989, Peter D. Beaulieu, based on and edited by Dr. W.T. Edmondson (School of Zoology, University of Washington). Among other lessons, this case specific evidence and illustration of bio-manipulation points up the difficulty of measuring whether, in an eco-system niche such as Puget Sound, one's actions are having a demonstrable cause-and-effect relationship to desired outcomes. Apart from direct effects in limited geographic areas such as embayments and beaches contaminated by adjacent runoff, when are deliberate Puget Sound actions incidentally to other larger but more remote species altering events such as Pacific Ocean temperature changes, predation, etc.

My general message is threefold:

First, the Action Agenda should include as an essential "action" a commitment for ongoing dialogue between policy and science (still retaining a clear distinction between scientific risk assessment and policy-setting risk management) as a necessary ingredient for a sustained effort to ensure a sustainable Puget Sound. Can the Partnership remain "problem solving rather than project driven" – a motto of the transportation bureaucracies during some of their more lucid moments (as in the instructive I-405 Corridor Program.)

Second (therefore), the Action Agenda should be a "rolling plan," fostered in ongoing partnership with the multiple co-sponsoring lead agencies, and producing separable "action packages" -- serving each of the reach-and-sill (above) delineations (saline Action Areas) as also aligned in those cases when local issues are widespread. Let us not confuse means and ends -- I submit that the Action Agenda is a means, and that the end is formalized and ongoing mutual engagement by lead agencies (structured "forums" or caucuses, perhaps statutorily required) on clear and actionable problems. Third, rather than immobilizing itself too much in open ended regulatory reform, the Partnership should daily maintain as the coherence-giving frame of reference the Puget Sound ecosystem(s). With this context diligently protected from the fragmenting alliance of specialized professionals and unwitting bill writers, the Partnership might then, very strategically, foster greater ecosystem coherence at the accessible state and local levels and, by this example and by day-to-day communication, also challenge members of federal agencies and Congress to do the same (e.g., what about expansive flood plane insurance, the Corp of Engineers mindset toward vegetation removal, and endangered species protection as a sometimes a barrier to broader ecosystem management?).

In all of this, note the key word members...in order to have any chance at all

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of penetrating the bastions of bureaucracy (government, science, industry, even citizen groups), communication MUST be sustained and between and among human faces, not word processors and letterheads.

**From:** Lisa Palazzi

**Date:** 04/15/2008

**Comment:** I am linking to you from the online PSP Habitat and Land Use topic forum information system. I have emailed the PSP before, but have not yet heard anything back – other than being put on these email lists. I love getting this information, and will be involved with the process. But I have a parallel process going on that I need the PSP to know about.

I have been working within a larger group of soil and wetland scientists (main contacts listed above) over the past several years at the state legislature, trying to get a state certification program going for these two key professional scientist groups (more information at [www.soilscientistlicensing.com](http://www.soilscientistlicensing.com)). We need some help from a group like PSP which has direct interest in the exact issue that this legislation is intended to address – protecting and restoring the Puget Sound ecosystem – in particular water quality, water quantity and related water dependent wildlife habitat.

We have been through Sunrise Review process (<http://www.dol.wa.gov/about/reports/sunriseSoilScientist0108.pdf>) – results from that extensive report recommended certification. And that means that there is documented evidence that unprofessional or unethical work carried out by those two professions has had negative impacts on public health, safety or welfare in WA state. So this is a real problem. We need to ensure that the people carrying out this work are adequately trained and educated, and that there is a state-based complaint system in place to ensure that bad practitioners can be removed from the certified professional list.

Soil scientist's and wetland scientist's work has direct impacts on water quality and water quantity balances in the Puget Sound. I am a consulting soil scientist (focus in hydrology) and wetland scientist, and I work on over 100 relatively small soil/wetland projects per year (individual landowners or subdivisions). And I have a small company ([www.pacificrimsoilandwater.com](http://www.pacificrimsoilandwater.com)). So the potential cumulative effects of our entire professional group are obvious and enormous. We expect to have about 300-400 certified soil or wetland professionals state-wide, with more than half working in the Puget Sound basin. At that rate – there could be

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(most likely are) over 15,000 relatively small soil or wetland projects per year in the Puget Sound basin that directly affect wetlands, and soil erosion, and water quality, and water quantity. That estimate ignores the larger projects that we work on – highways; ports; airports..... This is important!!

Unfortunately, the legislature does not respond to logic or facts, but rather to politics and powerful interest groups. And we – being a rather small group of scientists – do not meet that criteria, and are not that effective at the political process. Logic and facts are on our side (Sunrise Review), but the Engineering and Architects (AELC) and other consultant (NEBC) lobbying groups are not; neither are the forestry lobbyists (WFPA, WFFF). The AELC simply doesn't want any more professional licensing or certification programs run by the state—turf issues; the foresters and NEBC are afraid the new program will mean that they will be required to hire those professionals when they do soils or wetland work – another layer of bureaucracy; and other smaller lobbying groups are simply following the lead of their more powerful peers. And for those reasons alone—nothing to do with logic, or the fact that this program is very much needed -- we may not get this legislation passed. We are working with these lobbyists, trying to change their stance. But they are simply not that interested in us, because we have so little power.

But I know that if we have groups like the PSP behind us, we will not fail. So --- I am contacting you. I hope that you will pass this along to your peers in PSP, and can get back to us with some indication of whether or not you can help us at some level. I know that PSP is not a lobbying group; but I also know that you have contacts and power that we do not.