NORTHWEST ENVIRONMENTAL ADVOCATES

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Surface Water Quality Standards
P.O. Box 47600
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Via E-mail: swqs@ecy.wa.gov

Re: **Washington State 2010 Triennial Review of Water Quality Standards – Scope of Review**

Dear Ms. Conklin:

Thank you for the opportunity to participate in the scoping process for the 2010 triennial review of water quality standards for Washington. Northwest Environmental Advocates submits these comments on its own behalf and that of the Olympic Forest Coalition, Wild Fish Conservancy, and Columbia Riverkeeper.

The Department of Ecology has encouraged input into the scope of the revisions to be considered its triennial review by commenting that its priorities might be set on the basis of "expected environmental benefits vs. costs, technical complexity, available staff resources, federal mandates," and the "magnitude of the change (how many will benefit from the change)." Triennial Review of Washington's Surface Water Quality Standards - presentation (hereinafter "Presentation"), http://www.ecy.wa.gov/programs/wq/swqs/2010SWQSTriennialRevdocs/WQSBasics-TriReviewHEARING.pdf Ecology at 7. We do not necessarily disagree with these bases for determining the scope of this triennial review, although the concept of "how many will benefit" sounds as it is focused solely on the number of people rather than a broader understanding of beneficial uses that should benefit from the setting of protective water quality standards, including fish and wildlife. Of course, in some instances, there will be disagreements about how to balance the competing rationale set out by Ecology. For example, EPA has indicated that establishing numeric nutrient criteria is a federal priority yet Ecology suggests, Presentation at 22, that adopting nutrient criteria will have little if any environmental benefit. While, in general, our comments below urge Ecology to adopt aspects of water quality standards that will enhance their use as regulatory requirements to control nonpoint sources, standards also serve as a measuring stick for determining whether there is a water quality problem in the first place. It is our view that states tend to expend too much in setting standards as measuring devices (along with conducting analyses and writing reports) and too little on controlling pollution and enforcing standards, but we do believe that all aspects of water quality standards

are important to ensuring that Washington's Clean Water Act programs function to protect and to restore water quality in the state. For this reason we also urge Washington to ensure its numeric criteria are up to the task of assessing and identifying as well as solving water quality problems.

The basis for our input to the scope of the triennial review is the following. First, Ecology should consider the most significant sources of pollution that are not currently appropriately assessed and controlled. Nonpoint sources are obviously a key concern and in this regard it is not only improvements to the criteria that are needed but mechanisms to achieve nonpoint source controls. For this reason we have described herein an approach using Tier I of the antidegradation policy that would help address this lack of mechanisms. We believe that by imbedding expectations for the control of nonpoint sources *within* the water quality standards, the state can increase compliance with needed nonpoint source controls. The status quo – largely waiting for the development of TMDLs as the sole avenue to control nonpoint sources – is not a smart policy option but currently that is the primary method Ecology uses. There is no reason to wait when the Clean Water Act has handed the tools for on-going protection and restoration in the form of the required antidegradation requirements, which include "implementation methods." 40 C.F.R. § 131.12(a). Additionally, by strengthening the specific expectations for nonpoint sources in the standards that are the basis of current and future TMDLs, Ecology strengthens its post-TMDL ability to control those sources.

With regard to numeric criteria that are particularly important to the control of nonpoint sources, as well as many stormwater-type point sources, Washington's water quality standards need to have improvements regarding fine sediment that is both an indication of impaired water and needed improvements in controls of nonpoint sources. We urge attention to fine sediment as a focus of Ecology's criteria-setting because sediment is closely linked to sources of pollution that need to be curtailed and which are known to have a deleterious effect on key designated uses, such as salmon, steelhead, and bull trout. Not only are sediments themselves hazardous forms of water pollution, they are the carriers of other contaminants, such as toxics, into Washington's waters as well as indicators of overall poor water quality.

The second basis for our comments is the fact that toxic contaminants, particularly those that bioaccumulate, are a long-term and serious concern. Clearly the list of contaminants that are of concern to Ecology and that should be subject to regulation goes well beyond the Clean Water Act (CWA) 307(a) list. Waiting for EPA action to add pollutants to the list and to prepare CWA 304(a) recommended criteria for them is to wait too long. Moreover, many contaminants not only are well known to be found in the environment in conjunction with each other but also have additive or synergistic adverse effects on beneficial uses that are not addressed by EPA's 304(a) recommended criteria. We have some recommendations for the triennial review in this regard, namely the adoption of implementation methods for application of Washington's narrative criteria on toxic contaminants.

Regardless of numeric criteria or implementation of narrative criteria, some restriction of toxics' entry into surface waters can and should be accomplished by significant nonpoint source controls – both covered by NPDES stormwater permits and those not directly regulated by Ecology – that restrict erosion and surface runoff. Many toxic contaminants are widely dispersed over terrestrial areas (e.g., due to broadcast distribution of pesticides and fertilizers and deposition of airborne pollutants) and become chemically associated with soils and other solid materials. For this reason, many of Washington's current and future water quality standards for toxic contaminants cannot and will not be met without control of nonpoint sources which either contribute to the contamination of soils, or cause the release of contaminated soils into the state's streams and rivers, thus making it possible for them to enter aquatic food webs and adversely impact the aquatic ecosystem, people, and wildlife. Soil contamination may be natural, originate from sources such as air deposition both domestic and foreign, or be from current or previous applications of pesticides and fertilizers. In other words, controlling erosion and surface runoff will always pay dividends including but not limited to the realm of toxics. This is true in rural, urban, and suburban settings. If Ecology only focuses on changing toxic criteria and does not consider how these criteria will be applied through regulatory programs, the triennial review will not achieve the goal of increasing environmental benefits.

I. Antidegradation Policy

A. Antidegradation Tier I

In its presentation materials, Ecology describes Tier I of the antidegradation policy as follows:

> **Tier I**: Protects existing and designated uses. This is accomplished through all of our water quality programs designed to protect our waters, such as NPDES permitting, 303(d) listing, TMDLs, Forest Practices, etc.

Presentation at 18. This statement strongly implies that merely because Tier I applies to all water quality programs it "is accomplished" by its existence on the page. In fact, Tier I protections, as with all legal protections, are *only* realized where the specific protections are made clear, there is a process for applying them, and they are, in fact, applied. Unlike Washington's Tier II policy, which incorporates certain implementation methods through a review procedure, Tier I is completely silent on how Ecology will implement it. As such, it is inconsistent with federal law. *See* 40 C.F.R. § 131.12(a).

Washington's Tier I protections currently read as follows:

> Tier I — Protection and maintenance of existing and designated uses.
> (1) Existing and designated uses must be maintained and protected. No

> degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in this chapter.
>
> (2) For waters that do not meet assigned criteria, or protect existing or designated uses, the department will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards.
>
> (3) Whenever the natural conditions of a water body are of a lower quality than the assigned criteria, the natural conditions constitute the water quality criteria. Where water quality criteria are not met because of natural conditions, human actions are not allowed to further lower the water quality, except where explicitly allowed in this chapter.

WAC 173-201A-310. Subsection (1) of Washington's antidegradation policy is somewhat consistent with the federal antidegradation policy but not as specific as the federal policy requires. First, the federal policy requires an antidegradation policy and implementation methods that are, at a minimum, consistent with the following Tier I protections: "Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 C.F.R. § 131.12(a)(1). Washington's Tier I protections, in contrast, fail to include the requirement that the "level of water quality necessary to protect the existing uses" be maintained and protected. This is an important and required component of the federal policy that Ecology has not included in its antidegradation policy, an omission that requires a remedy in this triennial review.

Second, the federal policy requires implementation methods for Tier I. Washington has no such implementation methods. Instead, Section (2) just asserts that "the department will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards." This statement begs the question of exactly what "appropriate and definitive steps" Ecology will be taking. This also could be read to imply that Tier I is the same as a TMDL, which it is not, simply because Ecology does not identify any other methods. In fact, Tier I applies independently of TMDLs and must be applied each time a regulatory action is taken that involves the application of water quality standards. (This is to say nothing of its being a huge stretch to call existing TMDLs "appropriate and definitive steps" to control water pollution and restore water quality in light of their utter failure to accomplish that task.) In contrast to Ecology's implication that Tier I applies merely because it exists, in fact Tier I does not apply to Washington's waters because Ecology does not evaluate the protection of existing uses and the level of water quality necessary to support existing uses when the agency takes regulatory actions such as the development of CWA § 303(d) listings, TMDLs, NPDES permits, 401 certifications, etc. Neither does Ecology take any regulatory steps to ensure the ongoing protection of existing uses in these regulatory actions. This is precisely the reason why Ecology

must develop implementation methods, as required by federal law, and, more important, why it should use its water quality standards for effective protection of Washington water quality. Specifically, Ecology should have implementation methodologies for every likely regulatory use of Tier I, that is to say, every time that Ecology or some other agency expects to interpret and apply Washington's water quality standards.

By taking Tier I protections seriously, rather than writing them off as some sort of artifact, Ecology could obtain water quality protection and improvement prior to the issuance and implementation of TMDLs. By doing so, Ecology could meet EPA's stated goal of Tier I: "[Tier I is] the absolute floor of water quality" providing "a minimum level of protection" to all waters. Water Quality Standards Handbook, Second Edition, EPA-823-B-94-005a, August 1994, Appendix G, Questions and Answers on: Antidegradation, August 1985 at 4. Because Tier I protections apply to all waters, *id.*, it can be used to protect higher quality waters from deteriorating – the "anti" part of degradation – as well as to improve and maintain the quality of lower quality – impaired – waters. By preventing deterioration of the quality of all waters, Ecology would not only achieve environmental and public health protection but it would preserve agency resources.

Tier I protections provide the opportunity to clean up polluted waters at least to some degree prior to the development of a TMDL – potentially a long time – and perhaps in the best case scenario to avoid the need to develop a TMDL. Using Tier I as a method of protecting and maintaining the floor of water quality provides a mechanism for lowering pollutant loads prior to the development of a TMDL, at least with basic pollution control practices. (The TMDL may well demonstrate that more actions beyond basic controls are required to reduce loading to the allocations set out in the TMDL.) Waiting for a TMDL to be completed *before* taking those basic pollution control actions, on the other hand, merely postpones attainment of Washington's water quality standards. And, postponement itself is likely to be detrimental to many uses, such as fish and wildlife that may be locally extirpated or even rendered extinct by lack of compliance with standards. Similarly, waters that violate Washington's narrative criteria or designated use support requirements are not likely to be listed on the 303(d) list – although they are legally required to be – and therefore will not be scheduled for a TMDL at all. In these instances, while water quality is impaired, and standards are not met, no pollution reduction actions will be taken because no TMDL will ever be developed. Likewise, where water quality criteria are below levels at which toxic pollutants can be detected and quantified, there will be no 303(d) listing and no TMDL developed even if water quality is violating the criteria. In all three instances, nothing in Washington's Tier I antidegradation policy triggers pollution controls for nonpoint sources affecting waters that have unsafe levels of pollution. In fact, there is nothing that will prevent *further* degradation of these already over-polluted waters.

Likewise, there are no triggering mechanisms to protect, maintain, or enhance water quality that

is higher than the criteria in the following two situations. First, where water quality has eroded over the 35 years since 1975 – the key date for preserving "existing uses" under the federal definition at 40 C.F.R. § 131.3(e) and the water quality necessary to protect them – there is nothing in place to ensure that Washington protects those uses. Washington has no mechanism to identify and assess existing uses or to provide for their protection. Instead, contrary to federal policy, Washington has allowed uses to become locally extirpated, species to be forced to the edge of extinction if not over, and water quality to become more degraded without taking any action. Second, where nonpoint sources will lower water quality that current meets water quality criteria, there are no Tier II mechanisms to prevent further pollution, Ecology has no internal guidance, and the agency may well lack regulatory authority to regulate a nonpoint source that is planning to lower water quality. Including implementation methods for Tier I of the antidegradation policy can address these two shortcomings as well. Because Tier I requirements are water quality standards, other agencies that establish management practices for nonpoint sources would be required to meet them in developing practices for activities under their jurisdiction.

We urge Ecology to consider the wide breadth of implementation methods that could and should be used to assure Tier I protections for all waters. For example, a Tier I requirement could be continuous forested riparian buffers of a required minimum width to prevent excess sedimentation and toxics (current and historic) associated with sediment, as well as to capture nutrient runoff. These buffers also provide shade to both maintain and enhance temperature. Minimum buffer widths could also be established based on other considerations, such as: (1) application of phosphorus fertilizers which requires wider buffers to achieve pollutant removal; (2) the slope of the land which affects the efficacy of buffers in achieving sediment removal; and (3) soils, climate, and the erosive state of the land affected by human activities. This is probably the most obvious and needed Tier I implementation method.

Likewise, Tier I implementation methods could range from general narrative requirements and performance expectations to specific numeric provisions. They could include such baseline nonpoint source controls, in addition to the buffers mentioned above, as:

(1) zones in which no herbicides, pesticides, soil amendments, or fertilizers can be used because of their likely entry into waters of the state;
(2) a narrative prohibition on controllable erosion into waters of the State;
(3) a requirement that stream banks be stable and preserved in or restored to a natural state;
(4) calculated limits on controllable erosion established through modified Universal Soil Loss Equations, Tolerable Soil Loss, or other methods;
(5) limits on rates of application of fertilizers and soil amendments containing toxics (e.g., arsenic) and nitrogen;

(6) prohibitions on domestic animals, and their wastes, being in and near streams, with specific numeric restrictions (e.g., location of fencing, watering areas, and stream crossings); and
(7) use of all known available and reasonable methods of control and treatment.

These are but a very few of the approaches that could be taken to implement Tier I of Washington's antidegradation policy.

In addition to specific methods of providing protection, Ecology needs to have guidance concerning how it, or other agencies seeking to establish that water quality standards will be met in the face of existing or proposed activities, will assess whether existing uses are or will be protected. If there is no requirement to even identify what the existing uses are, it will be assumed that current uses are the same as existing uses, despite the passage of 35 years in which degradation may well have taken place. Identifying existing uses is also key to changing designated uses in instances where the designated uses are not sufficiently well defined to fully protect the uses that are or were there. Examples of this would be identification of sensitive amphibians that require more stringent protection or populations on the verge of extirpation for which higher levels of protection are required. An obvious approach would be to start with the list of "native wildlife species that have need of protection and/or management to ensure their survival as free-ranging populations in Washington." *See* WAC 232-12-297. Ecology could look at Pennsylvania's method of identifying and tracking existing uses that are not designated so that during its triennial reviews it has a method of updating its use designations consistent with 40 C.F.R. § 131.10(i)("Where existing water quality standards specify designated uses less than those which are presenting being attained, the State shall revise its standards to reflect the uses actually being attained.").

Focusing on Tier I protections will also give Ecology an opportunity to better protect wetlands which do not conveniently fit into most of the requirements of water quality standards. As Ecology staff likely recall, many years ago EPA encouraged states to adopt standards for the protection of wetlands. Few did. However, wetland protection remains an important goal. Requiring the identification first, and protection second, of existing uses and the water quality necessary to protect them under Tier I will ensure that the species that depend on wetlands are, in fact, fully protected.

The triennial review should also resolve an inconsistency with EPA requirements. Ecology's current policy contains an exception that is inconsistent with federal law: "No degradation may be allowed . . . *except as provided for in this chapter*." WAC 173-201A-310(1)(emphasis added). In fact, there are no provisions in EPA's implementing rules that allow for the removal of a use that is existing. There are, instead, a number of provisions that prohibit the removal of any designated use that is existing. *See, e.g.*, 40 C.F.R. § 131.10(g), (h)(1). Therefore, while

federal law would allow the removal of some designated uses that are not existing uses under Washington's subsection (1), the rule's combining of existing and designated uses results in a misleading and inconsistent provision with regard to existing use protection. This should be revised.

Last, Ecology's subsection (3) of the antidegradation policy is its natural conditions provision. This is not a definition of protection but, rather, an exception to the otherwise applicable criteria. It is not clear why this natural conditions exception resides in the Tier I protections section of Washington's antidegradation policy.

B. Antidegradation Tier II

Ecology needs to address some inadequacies in its Tier II antidegradation review as well. First, contrary to Ecology's reading, federal requirements are not limited to new or expanded loads. 40 C.F.R. § 131.12(a)(2). Without some form of pollutant increment tracking, Ecology cannot assure that formerly high quality waters are not degrading, contrary to Tier II requirements that

> [high] quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

Id. Specifically, waters may be degrading from sources other than NPDES permitted sources to which Ecology ostensibly applies its Tier II procedural requirements. However, the antidegradation obligation exists at all times for the water body as a whole. Therefore, each time a permit is renewed, regardless of whether the permittee proposes to increase loading, Ecology must do an analysis to ensure that the waterbody has not degraded and, if it has, the terms of the permit may require additional restrictions to ensure further degradation does not occur. Second, many NPDES permits have been issued based on potential loads to which the dischargers have not yet discharged. Ecology, and its antidegradation implementation rules, should not assume that the level of loading assumed in the past to not have the potential to cause or contribute to violations of water quality standards and/or to cause a lowering of water quality to high quality waters would be valid if evaluated today. Much can change in the water quality of a waterbody over a period of years or even decades, particularly with un- or under-regulated nonpoint and stormwater sources. Finally, as most if not all of these permits with potential loads were not subject to Tier II antidegradation review when the loads were first authorized by an NPDES permit, it is appropriate to subject them to the requirements of today's standards including this review.

Similarly, it is unclear to us how Ecology is conducting Tier II reviews of sources covered by its general permits. There is no indication that, for example, any analysis is done of the waterbody status and remaining assimilative capacity of a high quality water when an applicant applies for coverage under a stormwater general permit. It is simply inconsistent with federal law to ignore the requirements of the antidegradation policy based solely on the fact that a permittee is seeking coverage under a general, rather than an individual, NPDES permit.

There are other weaknesses in Washington's Tier II policy. First, the federal requirements of Tier II are not limited to a restricted list of polluting activities but Ecology's water quality standards do just this. Therefore, Washington's water quality standards are inconsistent with federal law. Second, Ecology has not set out how, in the absence of complete data on the status of its waterbodies, it carries out Tier II reviews. Without knowing the remaining assimilative capacity of a waterbody, Ecology is making assumptions. There is no policy rationale for making the assumption that there is, in fact, remaining capacity or that whatever remaining capacity will not be eroded by unregulated pollution sources. Therefore, Ecology should establish environmentally conservative assumptions as well as implementation methods that ensure that its Tier II findings are based on sufficient information.

II. Rules and Criteria for Implementing Requirements to Fully Protect Designated Uses

A. Implementation Methods for Providing Full Support of Designated Uses

A similar and overlapping approach to the one described above for Tier I antidegradation implementation methods would be establishing implementation methods, in rule or guidance, for how Ecology expects to fully support designated uses. As you know, such designated uses are part of the legal definition of a water quality standard but Ecology does not have methods of assuring full support of designated uses when it issues regulatory decisions such as 303(d) listings, NPDES permits, 401 certifications, and TMDLs. Because Ecology has included designated uses in its Tier I antidegradation policy, beyond that required by federal rules, such an approach would also be consistent with the language of Washington's antidegradation policy and with the federal requirement that a state have implementation methods for Tier I protections.

Such implementation method rules would look similar to the list set out in the discussion of Tier I implementation methods, including such basic requirements as buffer widths. The difference would be that the goal of the standards would be protection of designated uses rather than existing uses. In some cases these would be the same and in some cases designated use protection might require greater protection than the existing uses or visa versa. For example, if a use was degraded in 1975 and remains degraded, the designated use is likely to aspire to a higher level of protection, namely full support. On the other hand, if an existing use, pushed to the edge of extirpation, is more sensitive than the beneficial uses upon which the designations are made or

now requires a broader geographic range of protection, protection of the existing use might well require a greater level of protection. Given the wording of Washington's Tier I antidegradation policy, one set of implementation method rules could likely be developed to ensure protection of both existing and designated uses, whichever required the higher level of protection. Implementation methods would spell out how to identify existing uses requiring greater protection.

The toxic contamination in orca whales (*Orcinus orca*) is one example that demonstrates the need for methodologies to address the data and information being collected that address designated use support There is sufficient evidence that orca have PCB and DDE levels in the "high to extremely high end of the reported range for both pollutants." High Levels of PCB and p,p0-DDE Found in the Blubber of Killer Whales (Orcinus orca), David Hayteas and Deborah Duffield, Marine Pollution Bulletin Vol. 40 (2000), www.nwfsc.noaa.gov/research/divisions/cbd/.../pcbkwblubber.pdf at 559. These levels, in turn, are "linked to many health problem in marine mammals, including dysfunctions in the reproductive and immune systems." *Id*. Likewise, a population of orca in Puget Sound have been listed as endangered under the federal Endangered Species Act; these orcas spend several months of the summer and fall each year in Puget Sound. *See* http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/. Among the influences that the National Marine Fisheries Service state may be responsible for the status of this population is "persistent pollutants that could cause immune or reproductive system dysfunction." *Id.* It is our belief, based on running queries on Ecology's 2008 303(d) list database, that the agency has not listed any waters for these pollutants' effects on the endangered species of orca nor listed the waters based solely on their inability to provide full support for orca. This example demonstrates that there are deficiencies in the listing process but also that the water quality standards themselves lack sufficient implementation methods to provide full support for designated uses, as legally required.[1]

B. Criteria to Ensure Full Support of Designated Uses

A related but different need is for criteria that will ensure full protection of designated uses. While such designated uses are themselves a legal component of water quality standards, the more specificity included in the standards, and the more the standards relate to data that are collected or capable of being collected, the greater the likelihood the standards will be

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[1] Ecology does have a 2008 Category 5 listing, however, for high concentration of PCBs in blubber of harbour seal pups with a reference to literature showing links to adverse health effects of concentrations related to immunotoxicity in harbor seals and "significant correlation to lower circulatory retinol levels occurring at the time when vitamin A is required for growth and development." This listing ID is 36168 but applies to the "full extent of Puget Sound."

implemented through existing regulatory tools and approaches. In order for Washington's waters to fully support the designated uses, as required by law, its waterbodies must possess a variety of features. For example, a waterbody that has been partially or wholly dewatered by human activities no longer has water flows that support the designated uses. Likewise, a waterbody with unstable banks due to human influences cannot withstand high flows, is more susceptible to erosion, will not retain groundwater inputs, etc. Inadequate large woody debris, due to loss or removal, can cause channel destabilization, which can result in higher turbidity and suspended sediment concentrations. All of these and other characteristics are essential to waters' providing full support of the designated uses and maintaining the level of ambient water quality and sediment quality with the same outcome. Accordingly, in the 1995-96 time period Ecology considered what it termed "Criteria to Protect the Wildlife Habitat Use-Type." Specifically, Ecology proposed criteria that included the following:

- bed substrate and bank stability
- large woody debris
- pool character and channel morphology
- water flows
- toxic, radioactive, and deleterious materials

We strongly support Ecology's building on the work it did 15 years ago to clarify its standards by setting out the expectations for protection of waters to support fish and wildlife. In many cases, these criteria would be *direct* measures of quality of waters as habitat rather than indirect measures such as temperature (putting aside temperature as a pollutant). These criteria would also more readily lend themselves to being developed into implementation method rules. So, for example, rather than merely having a temperature criterion that in order to be met requires bank stability and water flows, Washington's water quality standards would have explicit bank stability and water flow criteria in addition to the temperature criteria. Then, separately, Ecology would evaluate the types of implementation methods needed to achieve these more specific habitat protection criteria, such as the size of buffer zones. Taking this approach meets Ecology's criteria for being included in the 2010 triennial review.

With regard to flows, it is clear that waters in Washington suffer from excess high flows as well as from excessively low flows. There are a variety of approaches that could be taken to incorporate flow protections from either problem, some relatively simple and some far more complicated. We urge Ecology to, at a minimum, include in this triennial review a proposal to adopt some basic narrative protections concerning flows that are associated with the legal requirement to fully support designated uses. Even such a small step would put Ecology's water quality standards on an improved path towards relevance to providing full support of Washington's beneficial uses.

Another way of looking at this is that Ecology needs to put 'more meat on the bone' of its existing rules regarding implementation of nonpoint source controls. Current rules state that

> Activities which generate nonpoint source pollution shall be conducted so as to comply with the water quality standards. The primary means to be used for requiring compliance with the standards shall be through best management practices required in waste discharge permits, rules, orders, and directives issued by the department for activities which generate nonpoint source pollution.

WAC 173-201A-510(3)(a). That nonpoint sources must conduct their activities so as to comply with water quality standards is a clear and excellent starting point. However, from a standards perspective, the limitations with this important rule are two-fold. First, many of the existing water quality standards and criteria are several steps removed from the activities on the ground, making it unclear what it means for activities to comply with the standards. This is why we strongly recommend the addition of criteria and implementation methods that make that connection between water quality and the source, as described above. Second, this rule refers to "rules, orders, and directives" but it is not clear how many of these rules, orders, and directives Ecology has produced and is able to produce. Far more efficient would be to introduce more specificity and clarity into the standards rules themselves in order that protections would begin immediately and apply universally rather than to have to wait until a situation is so egregious as to warrant an order or the time has finally arrived that Ecology has produced a TMDL. Put another way, now is the time to promulgate the "rules" that are referenced in this existing rule.

III. Remaining Work

Ecology states that there is "[w]ork left from the last Standards approval in 2006" which includes the following:

- Gathering new data from tribes and WA Fish and Wildlife to update where fish uses occur.
- Standards to protect salmon spawning gravels
- Implementation of new temperature standards where streams go naturally dry in summer
- Eventual ID of waters that have warm water fish uses

Presentation at 21. We agree that Ecology should continue to update its use designations based on new data. This should be a part of every triennial review. *See* 40 C.F.R. § 131.20(a). We oppose, however, Ecology's spending its limited resources on identifying waters with warm water fish uses. Washington's waters suffer from excess temperatures and failure to support threatened and endangered cold water species; seeking ways to alleviate standards that could be

described as 'over protective' is absolutely not a priority in a world faced with the extirpation and extinction of numerous species and in which Ecology's water quality standards are so far behind what they need to be to protect those and other sensitive species and human health. In addition, while some nonpoint sources might chafe at the possibility they would be asked to take actions that are associated with restoring natural temperatures to waters of the state, these actions are essentially the same ones that are needed to reduce sedimentation to natural levels, to prevent the erosion and surface runoff of toxics from current and historical uses, to retain water in streams with natural vegetation, and to meet other water quality standards and criteria.

IV. Numeric and Narrative Criteria

A. Numeric Nutrient Criteria

Ecology states in its Presentation that it does not see

> the 'bang for the buck' in spending limited staff resources to develop criteria that may not be useful when we already have criteria and programs in place to control nutrients. That's where we see the best focus at this time. We use D.O. and pH as sensitive indicators of riverine eutrophication, and resulting TMDLS that focus on nutrient controls.

Presentation at 22. We do not agree. At the very least, Ecology needs to explain precisely why it disagrees with EPA, which is strongly encouraging states to develop numeric nutrient criteria and

> strongly recommends that states adopt numeric nutrient standards for their priority waters—i.e., waters at greatest risk of nutrient pollution (such as those identified through the EPA-USGS SPARROW modeling effort) or of greatest consequence (such as drinking water sources)—first. States may also choose to prioritize their actions for waters where sufficient information is available to move quickly to adopt numeric criteria in the near-term.

EPA website "What is EPA's National Nutrient Policy?" (hereinafter "EPA Nutrient Policy") at http://water.epa.gov/scitech/ swguidance/waterquality/standards/criteria/aqlife/pollutants/ nutrient/policy.cfm. Specifically, EPA calls for states to adopt criteria to

> address causal (both nitrogen and phosphorus) and response (chlorophyll-a and transparency) variables for all waters that contribute nutrient loadings to our waterways. EPA encourages the adoption of standards for all four parameters because of the interrelationships between these parameters and its experience showing that controlling both nitrogen and phosphorus is important to

> successfully combating nutrient pollution in all waters.

Id. As EPA goes on to say, "[i]n a time of scarce resources and competing priorities, we cannot afford delayed or ineffective responses to this major source of environmental degradation. . . . [W]e can't effectively manage what we can't measure." *Id*.

Specifically, in light of the US Geological Survey's (USGS) work on nutrient pollution in Puget Sound, Ecology should explain what limitations, if any, would be associated with *not* adopting numeric nutrient criteria. For example, USGS identifies the top three sources of nutrients to the Puget Sound Basin as animal manures, agricultural fertilizers, and atomospheric deposition. *See* USGS Fact Sheet FS-009-98, Nutrient Transport in the Major Rivers and Streams of the Puget Sound Basin, Washington by E.L. Inkpen and S.S. Embrey, March 1998, http://wa.water.usgs.gov/pubs/fs/fs.009-98/. However, USGS also states that

> In urban areas, wastewater treatment plants (WWTPs) are typically an important source of nutrients. WWTPs are known to be point sources of nutrients because the nutrients are discharged directly to a river and become part of the transported load. In the Puget Sound Basin, however, most WWTPs discharge directly to Puget Sound or its adjacent waters and so are generally not a major source of nutrients to the rivers. Two exceptions are the Puyallup River, where WWTPs account for 22 percent of the transported nitrogen load, and the Snohomish River, where WWTPs account for 15 percent of the transported phosphorus load (table 1). Other point sources that might be important but for which data were not available include nutrients from commercial and industrial discharges.

Id. Our concern is that using pH, to use one example, is a step removed from controlling the nutrients which are the source of the problem. Most criteria for water quality parameters are already a step – or more – removed from many of the stream-side and landscape conditions that are necessary to maintain water health. And, those conditions are too a step removed from the remedial actions that are necessary to meet criteria. Here, Ecology, is proposing to retain an approach in which what it measures and regulates is many steps removed from the measurements and control of the sources of the problem. We cannot endorse the concept that it is environmentally beneficial or administratively efficient to put an extra step – interpreting the reductions of nutrients needed to attain pH and/or DO – into the 303(d) listing, TMDL, NPDES permitting, or nonpoint source control processes. EPA agrees:

> Numeric nutrient standards will facilitate more effective and efficient program implementation. Notable progress has been made relying on site-specific application of narrative standards to develop nutrient TMDLs. But this can often be difficult, resource-intensive and time-consuming. Adopting numeric standards,

however, has a number of key advantages:

- easier and faster development of TMDLs;
- quantitative targets to support trading programs;
- easier to write protective NPDES permits;
- increased effectiveness in evaluating success of nutrient runoff minimization programs; and
- measurable, objective water quality baselines against which to measure environmental progress.

EPA Nutrient Policy. To support states in establishing numeric nutrient criteria, EPA has issued recommended criteria for ecoregions as well as many other guidance documents. *See, e.g.,* EPA Website: Ecoregional Criteria at http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/aqlife/pollutants/nutrient/ecoregions_index.cfm. Therefore, it should not tax Ecology's resources to develop appropriate numeric nutrient criteria.

Adoption of numeric nutrient criteria for Washington is long overdue. In 2001, EPA extended its previously-imposed deadline for state adoption of numeric criteria to the end of 2004, and stated its intent to impose its recommended criteria if states did not comply:

> EPA intends to propose to promulgate nutrient water quality criteria . . . by the end of 2004, where States and authorized tribes have not substantially completed their adoption . . . if the Administrator determines that such new or revised standards are necessary to meet the requirements of the Clean Water Act.

66 Fed. Reg. 1673-74 (January 9, 2001). The adoption of numeric nutrient criteria is important because nutrients can affect nearly all the designated and existing beneficial uses of Washington's waters. Increased phosphorus and nitrogen both can alter primary and secondary production and alter plant types or plant community structure. These three pathways can have measurable effects on rivers and streams, as both phosphorus and nitrogen – separately and together – have the potential to increase productivity or alter plant communities. Increased concentrations of nutrients can impair recreational, aesthetic, and drinking water uses in streams and rivers by directly stimulating primary production (i.e., waters have high levels of algae), and can impair aquatic life use indirectly by degrading macroinvertebrate and fish communities. Specifically, recreational and aesthetic uses can be impaired by increased likelihood of exposure to cyanobacterial toxins that may make contact with the water unsafe. Drinking water use can be impaired by increased algal-related turbidity and particulates in the source water, which can also cause increased production of disinfection byproducts, increased likelihood of cyanobacterial toxin exposure, and increased treatment costs. Lastly, the amount and types of algae present can adversely alter the aquatic animal communities (fishes and macroinvertebrates).

In addition, nutrients contaminate groundwater and, in some areas, surface water through groundwater contamination. Some surface water in Washington is directly related to groundwater. *See* Ground-Water Flooding in Glacial Terrain of Southern Puget Sound, Washington, http://wa.water.usgs.gov/projects/pugethazards/urbanhaz/PDF/fs111_00.pdf ("The resulting landscape is characterized by many shallow, elongated depressions and ice-contact depressions (kettles). The larger and deeper depressions are occupied by ground-water-fed lakes, such as American and Gravelly Lakes."). Nitrate and phosphorus pollution in these lakes has caused toxic filamentous green algae and cyanobacteria blooms in Pierce County beginning in American Lake in the winter of 1998-1990. Currently 23 out of 29 lakes in Pierce County experience recurring filamentous green algae and toxic cyanobacteria blooms. The source of these nutrients are atmospheric deposition, surface water runoff that is disposed of by means of infiltration dry wells that are perfected in underlying porous gravel soil, and leachate from on-site septic systems. The nutrients enter streams and lakes by groundwater transport to and subsequent groundwater discharge. Nutrients migrate in groundwater. According to USGS, for example,

> [y]ears of monitoring data on phosphorus concentrations in the plume of treated sewage on Cape Cod has shown that phosphorus does migrate in ground water, raising concerns that phosphorus-containing ground water discharging into Ashumet Pond may accelerate the eutrophication of the pond. . . . The Massachusetts Department of Environmental Protection (DEP) is using these results to develop technical guidance concerning wastewater disposal to ground water. The DEP is concerned that land disposal of wastewater through infiltration basins and septic leaching fields can lead to discharge of phosphate-enriched ground water to sensitive lakes and streams.

See USGS Toxic Substances Hydrology Program, Phosphorus Doesn't Migrate in Ground Water? Better Think Again! http://toxics.usgs.gov/highlights/ phosphorous_migration.html. Ecology needs to address these sources of groundwater contamination that are directly related to degraded surface water quality.

As with our other comments, we do not urge Ecology to adopt numeric nutrient criteria alone. It is essential that – whether relying on DO and pH or adopting numeric nutrient criteria – that Ecology build implementation into its water quality standards and not plan on waiting for the development of TMDLs to meet water quality goals and criteria.

B. Numeric Toxic Criteria

1. Aquatic Life and Wildlife Criteria

In our opinion there are several limitations to Washington's numeric toxic criteria, many of

which are outside the realm of Ecology to address. These include EPA's relatively few recommended numeric criteria for the protection of aquatic life, the lack of recommended national numeric wildlife criteria, the failure of EPA's recommended criteria to protect threatened and endangered species, and the fact that recommended criteria do not address additive or synergistic effects of multiple pollutants on designated uses. For these reasons, we urge Ecology to include a variety of actions in its triennial review. First, as required by statute, Ecology must update any aquatic life criteria for which EPA has issued new recommended numeric criteria since Ecology's last standards rulemaking. We urge Ecology, in addition, to seek out and use any instance where EPA's recommended aquatic life criteria have been determined to be less protective than the levels assessed to be protective by the U.S. Fish & Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS). In each of these instances, as discussed below, Ecology should adopt the more stringent criteria.

One example of this is copper. In its March 20, 2009 Biological Opinion for the Salmon Creek Interchange Project for Clark County, Washington, the National Marine Fisheries Service Northwest Region concluded that

> These 286 acres will be subject to Clark County code and state water quality standards. However, NMFS recognizes that these standards may not be protective of fish life, and so will use the biological effects thresholds of 2.0 ppb for dissolved Cooper [sic] and 5.6 ppb for dissolved Zinc for effects to fish.

Id. at 16. Copper interferes with salmonids' olfactory abilities which in turn affects predator avoidance and other functions upon which the fish depend on a heightened sense of smell. For this reason, NMFS advises use of a criterion not to exceed 2.0 µg/L, a level more stringent than Washington's numeric criteria for copper. There are similar sources of information developed by NMFS and FWS upon which Ecology could and should rely. In any instance where these agencies have determined levels that would be protective of threatened or endangered species that are the same as or similar to species in Washington, those levels should be used, as in the copper example above. Another example of these determinations by federal agencies are the California Toxics Rule Biological Opinion which addressed a number of specific toxic constituents. A third example is the forthcoming Biological Opinions on the Oregon aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, selenium, silver, zinc, aluminum, dieldrin, endosulfan, endrin, heptachlor epoxide, lindane, pentachlorophenol, tributyltin, and ammonia. It is our understanding that at least one of these biological opinions will also address cumulative impacts of multiple toxic constituents. The dates for completion of those analyses are December 31, 2011 for NMFS and June 30, 2012 for FWS. *See Northwest Environmental Advocates v. NMFS and FWS*, D Or. (Portland Division) Civil No.: 10-907-BR, Stipulated Order of Dismissal, August 18, 2010. Yet another example are the formal and informal consultations on California toxics TMDLs.

Second, Ecology should adopt numeric criteria for the protection of wildlife based on EPA's Great Lakes Initiative (GLI) criteria for DDT and metabolites, PCBs, mercury and dioxin as well as to adopt and use the GLI methodology for deriving wildlife criteria. 40 C.F.R. Part 132 Appendix D.

2. Human Health Criteria

Washington's human health criteria are currently established by EPA's National Toxics Rule (NTR) on the basis of a one in a million risk of cancer. WAC 173-201A-240(6). The NTR uses the now-discredited fish consumption rate of 6.5 grams/day rather than EPA's new recommended fish consumption level of 17.5 grams/day. EPA discussed the sufficiency of the latter fish consumption rate in its recent decision on Oregon's 2004 submission of revised human health criteria. Technical Support Document (TSD) for EPA's Action on Oregon's New and Revised Human Health Criteria, June 1, 2010. In Appendix A of that document, EPA notes that its 2000 Methodology recognizes the variability of fish consumption rates among population groups and by geographic region. *See* Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. U.S. EPA, 822-B-00-004, 2000. EPA noted that

> [i]n employing the Methodology to derive criteria, the Agency urges States and Tribes to use a fish intake level derived from local or regional data in place of the national default recommendation to ensure the fish intake level chosen is protective of highly exposed individuals in the population and to ensure that adequate protection is afforded to all identifiable subpopulations. A four preference hierarchy concerning the use of fish consumption rate data is set forth: (1) use of local data; (2) use of data reflecting similar geography/population groups; (3) use of data from national surveys; and (4) use of EPA's default intake rate. In using local data, EPA recommends that arithmetic mean values should be the lowest value considered by states when choosing fish consumption rates for use in criteria derivation.

TSD at 44. In Appendix A of the TSD, EPA discusses the results of a survey of Columbia Basin Tribes, including tribal members in Washington State. The survey concluded that fish consumption rates representing the mean, 90th percentile, 95th percentile, and 99th percentile were 63, 113, 176, and 389 grams per day, respectively. A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs of the Columbia River Basin, Columbia River Inter-Tribal Fish Commission, Portland, Oregon. Technical Report 94-3, 1994.

In light of EPA's action on Oregon's 2004 criteria and its national recommendations, it is clear that Washington's (NTR) criteria based on 6.5 grams/day fish consumption are not sufficiently protective of human health. Therefore, the state should revise the assumed fish consumption rate

and recalculate its numeric criteria. Such revised criteria would also, when applied, provide additional protection to fish and wildlife where there are no more stringent or existing aquatic life criteria. It is likely that the process of adopting these more stringent criteria would be considerably less onerous than that used by Oregon. For example, if Washington simply adopts the 175 grams/day figure rather than spending years making this policy decision, it would be more streamlined. Likewise, Washington would not have to spend years evaluating ways in which it could relieve point sources from having to meet the new criteria if it thinks that is a valuable goal, as Oregon did, because Oregon is already entering the final stages of its rulemaking process with what it could come up with. From a broad spectrum of ideas originally pushed by industrial and municipal sources, the end result is a narrow list: a Great Lakes Initiative-styled intake credit, the use of variances with pollution control plans, compliance schedules, and a likely moribund "background concentration" rule that would allow sources to discharge concentrated intake pollutants. In addition, there are two aspects of Oregon's rulemaking that bear consideration. First, Oregon's point sources did not have permits with *any* human health criteria, making these provisions to avoid the criteria more important to the permittees than presumably they would have been otherwise. We hope that Ecology's permits have not been as poorly written as Oregon's in that regard. Second, the state must be prepared to process variances for sources that do not believe they can meet the new criteria in any known time frame. It would behoove Ecology to have some work load projection associated with the variance requests.

There is no question that Washington needs updated human health criteria for toxics but we are concerned about the possibility that unless the process is fairly streamlined, it could overwhelm the entire triennial review. And, there are some questions about the merits of proceeding. While criteria based on 175 grams/day of fish consumption would provide a much greater human health and aquatic life protection than those under the NTR, a full 48 percent of the criteria at the 175 grams/day fish consumption level will be below the quantitation level and are, therefore, purely academic (at least if they are only applied to ambient water column data). This, at the very least, argues for using a variety of methods of obtaining data rather than relying upon ambient water column results, as well as addressing detection limits in lieu of using only quantitation limits. Moreover, if the primary source of toxic pollution is not from NPDES sources but from non-NPDES sources or sources such as stormwater for which permit conditions are not closely tied to the numeric criteria, the criteria may be of relatively little value. In such a case, the primary merit to making the criteria more stringent would be to curtail NPDES discharges from industrial and municipal sources which may, or may not, be significant sources relative to other sources of the toxic pollutants. This argues, as it did in Oregon, for concurrent attention to making other standards changes to address major sources of toxic contamination to Washington's waters, whether nonpoint sources, air deposition sources, or unregulated discharges from industrial, commercial, and residential sources into municipal sewage collection systems. Without those concurrent changes, we fear the possibility that Ecology would make the criteria more stringent

with one hand while relieving the regulatory burden of NPDES permittees' meeting the criteria on the other and leaving the non-NPDES sources completely off-the-hook. None of this, however, takes away from the sheer inadequacy of the NTR fish consumption levels and the NTR's outdated criteria, both of which militate against Ecology's taking no action.

The revised human health criteria based on fish consumption was, in fact, a very controversial issue in Oregon which – if successfully brought to completion – could likely result in little environmentally meaningful change due to weaknesses in the state's regulatory programs. A brief summary of the process in Oregon is as follows: municipalities and Northwest Environmental Advocates pushed the Oregon Environmental Quality Commission to direct the Oregon Department of Environmental Quality to develop rules to implement standards for non-NPDES sources, including air deposition and traditional nonpoint sources. In the end, proposals to control nonpoint sources, to increase controls on industrial and commercial discharges to municipal sewage collection systems not regulated under pretreatement programs, to control urban pesticide use through mandatory local ordinances, and to ensure that significant air and land sources were given individual load allocations (for future regulation) in TMDLs all were ignored by DEQ. In addition, over two years were spent evaluating options for reducing the impacts of the new toxic criteria on NPDES sources. As a result of this process, the following are true: (1) the point sources are likely to seek variances or intake credits to avoid the criteria to the extent possible, (2) many of the criteria are below quantification limits and will therefore not be implemented; and (3) the non-NPDES sources will avoid the criteria altogether because of weaknesses in the state's nonpoint source program. Therefore, there may be very little human health or environmental benefit to the revisions to Oregon's human health criteria for toxics.

Another option might be for Ecology to request that EPA revise the NTR criteria that apply to Washington, thereby obtaining an improved outcome while avoiding the resources that would be diverted to the process.

C. Narrative Toxic Criteria

Washington's current narrative toxic criterion reads as follows:

> Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the department.

WAC 173-201A-240(1). One problem with this criterion is that Ecology has no method of implementing it to protect the most sensitive uses affected by toxics other than an associated rule

which reads as follows:

> The department shall employ or require chemical testing, acute and chronic toxicity testing, and biological assessments, as appropriate, to evaluate compliance with subsection (1) of this section and to ensure that aquatic communities and the existing and characteristic beneficial uses of waters are being fully protected.

WAC 173-201A-240(2). There is nothing in subsection (2) that explains how "chemical testing" and WET testing can address the real world issues of bioconcentration of toxic contaminants in fish and aquatic-dependent wildlife. That leaves "biological assessments" as the sole method of ensuring protection of such wildlife. However, there is no evidence that Ecology does, in fact, use such biological assessments in regulatory actions to protect sensitive biota from the cumulative effects of multiple pollutants with additive or synergistic impacts.

For this reason, Ecology should include in its triennial review the development of implementation method rules to both interpret and apply the restrictions of its narrative toxics criterion. These methods need not, and should not, be restricted to the Clean Water Act 304(a) pollutants. Such an approach would move the agency towards restricting toxics that are known to have deleterious impacts on such designated uses as threatened and endangered salmonids, and piscivorus wildlife such as mink, otter, eagles, herons, falcons, seals, and orca whales. Implementation rules must make the link between some of the most difficult sources the agency needs to regulate – polluted run-off that is under permits and not under permits – and the loading. In many cases, the results will overlap with the implementation methods that are needed to protect streamside habitat and protect and restore other water quality parameters, such as buffers. In other cases, such as industrial stormwater, municipal discharges, and pesticide use, additional measures are needed. For example, implementation methods might require municipalities to adopt restrictions or bans on the use of some pesticides, particularly those that are used only for aesthetic purposes ("weed-and-feed"). Uncontrolled point sources of toxics that discharge to municipal treatment collection systems but which are not regulated under federal pretreatment programs should be regulated.

In other words, there must be a regulatory connection between the kind of analysis done by Ecology's Environmental Assessment Program and its regulatory actions. *See, e.g.*, Control of Toxic Chemicals in Puget Sound: Phase 2: Development of simple numerical models; The long-term fate and bioaccumulation of polychlorinated biphenyls in Puget Sound by Greg Pelletier and Teizeen Mohamedali, April 2009, http://www.ecy.wa.gov/pubs/0903015.pdf. Having concluded that "[c]oncentrations of PCBs in sediments and biota were found to be very sensitive to external loading" and that "loads may have increased recently, possibly due to increases in loading from nonpoint (diffuse) sources," this paper's first recommendation is that

> Reduction of external loading is suggested to prevent a possible increase, or cause a decrease in PCB concentrations in Puget Sound. Methods for reducing external loading of PCBs should be identified and implemented. For example, best management practices to reduce nonpoint loading from developed areas (e.g., commercial/industrial and residential areas) could reduce many pollutants, including PCBs that are associated with suspended solids in runoff.

Id. at101. While TMDLs could and should be used to achieve this reduction in external loading that is discussed in this and similar papers, Ecology's water quality protections should not wait until a TMDL is completed and implementation of a TMDL begins. Instead, Ecology's water quality standards themselves should be as self-implementing as possible, for point and nonpoint sources. Not only will this provide much enhanced and timely environmental protection but it is more efficient because it begins to address the costly impacts of toxic pollution prior to the development of a TMDL. Using implementation methods for narrative criteria would enhance Ecology's ability to regulate toxic pollutants.

In addition, the CWA requires each State, upon review of its water quality standards, for all toxic pollutants for which EPA has not issued recommended numeric criteria, to "adopt criteria based on biological monitoring or assessment methods . . . " as part of its water quality standards. 33 U.S.C. § 1313(c)(2)(B). Washington has narrative toxic criteria, but it does not have narrative criteria that are based on biological monitoring or assessment methods as required by the statute. Nor does Washington have "narrative criteria or criteria based upon biomonitoring methods where numerical criteria cannot be established." 40 C.F.R. § 131.11(b)(2). As a consequence, Washington's narrative criteria do not meet a statutory requirement of the CWA or EPA's implementing regulations. Likewise, EPA regulations require additionally and more specifically that where a state adopts narrative criteria for toxic pollutants "the State must provide information identifying the method by which the State intends to regulate point source discharges of toxic pollutants on water quality limited segments based on such narrative criteria." 40 C.F.R. § 131.11(a)(2). Ecology has not provided information on how it intends to regulate on the basis of its narrative criteria rendering them inconsistent with federal law and generally of little utility in protecting and restoring Washington's water quality.

D. Numeric Criteria for Fine Sediment.

Ecology should adopt numeric criteria for fine sediment. As explained above, fine sediment is intimately related to many of the pollution sources that create the greatest threat to Washington's water quality. Having water quality standards that act as a bridge between Ecology's expectations and goals for waters and the activities that affect water quality is essential. For example, forest practices must meet water quality standards. *See* RCW 90.48.420(1)("Adoption of forest practices rules pertaining to water quality by the forest practices board shall be

accomplished after reaching agreement with the director of the department or the director's designee on the board. Adoption shall be accomplished so that compliance with such forest practice[s] rules will achieve compliance with water pollution control laws."). The more clear and relevant the water quality standards, including numeric criteria, the better able all parties, including Ecology, can evaluate and ensure compliance.

Ecology needs to develop and implement quantitative sediment reduction rules as part of the forest practice regulations to ensure that water quality standards for sediment and turbidity are met. For example, currently the standards for road construction and maintenance are only qualitative. Road construction rules have several provisions intended to minimize sediment delivery. *See, e.g.*, WAC 222-24-030(4), (5), (6)(b), (7), (8), (9)(a)(b). Road maintenance rules also contain several provisions intended to reduce and/or minimize sediment delivery. *See* WAC 222-24-052(1), (2), (3). However, all of these rules have one thing in common – they contain *qualitative* measures to reduce or minimize surface erosion and sediment delivery. For example, WAC 222-24-052 (1)(c)(i-iv) states that

> Road surface must be maintained as necessary to: minimize erosion of the surface and the subgrade; and minimize direct delivery of surface water to typed water; and minimize sediment entry to typed water; and direct any ground water that is captured by the road surface onto stable portions of the forest floor.

The information provided in an analysis attached, the July 2009 Washington State Forest Practices Clean Water Act Assurances Review Part 2, strongly indicates that without quantitative sediment reduction rules no assurances can be provided that forest road construction, use, and maintenance will comply with Washington's water quality standards for turbidity. We believe that is the roughly the same conclusion Ecology made in its 2009 Clean Water Act Assurance Review of Washington's Forest Practices Program, dated July 15, 2009.

Likewise, the need for numeric sediment criteria is demonstrated by the Lake Ozette Sockeye Limiting Factors Analysis, May 2009 at http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Ozette-LFA.cfm. This document demonstrates that the quantity and quality of beach spawning gravels in Lake Ozette have declined significantly from their historic conditions to present, making them key limiting factors affecting the success of beach spawning sockeye. For example, the entire Umbrella Beach area historically used for spawning has been covered by several acres of fine sediment originating from Umbrella Creek and no longer provides suitable habitat. *Id.* at 4-26. Overall, according to the analysis, delivery of fine sediment to the lake from tributaries has increased three-fold during the last 50 to 100 years, largely due to increased sediment production from forest roads, clear-cutting, channel incision, and agricultural development. This document also sets out the myriad ways in which fine sediment affects water quality and fish survival:

> Elevated turbidity and suspended sediment concentration (SSC) have numerous negative impacts on fish and other stream biota, including behavioral effects, physiological effects, and habitat effects. Behavioral effects of turbidity and SSC on fish include changes in foraging, predation, avoidance, territoriality, homing, and migration (Waters 1995; Bash et al. 2001). Physiological effects include gill trauma and damage, reduced respiration, changes in blood physiology due to stress, disruption of osmoregulation during salmonid smolt migration, and reduced oxygen transfer to incubating eggs in gravel affected by sedimentation (Waters 1995; Bash et al. 2001). Habitat impacts include: changes in the abundance and diversity of prey (e.g., invertebrates and mircofauna); altered primary production (i.e., photosynthesis) (Waters 1995; Bash et al. 2001; Suttle et al. 2004); changes in temperature regimes (Waters 1995); increased channel sedimentation (Everest et al. 1987); increased gravel and cobble embeddedness (Bash et al. 2001); reduced gravel permeability, intergravel water flow and oxygen transfer (i.e., hyporheic flow); reduced gravel porosity and emergence success (McNeil and Ahnell 1964; Everest et al. 1987; McHenry et al. 1994; Reiser 1998); reduced pool habitat volume and habitat complexity (Lisle and Hilton 1999); and increased bedload mobility and scour depths (Lisle et al. 2000).

Id. at 5-30. This analysis also discusses the relationship of large woody debris, for which we urge Ecology to develop criteria, and excess sedimentation:

> The following activities affect water quality conditions in the Ozette River:
>
> • Large woody debris (LWD) removal or losses in LWD volume has caused channel destabilization, which, in turn, can result in higher turbidity and suspended sediment concentrations.
> • Logging and road building have increased sediment inputs, reduced sediment storage, and resulted in more frequent high suspended sediment concentration events in the Ozette River.

Id. at 4-17. Needless to say, there are many more examples of waterbodies and their beneficial uses – frequently threatened and endangered species – in Washington that are adversely affected by excess fine sediment.

Conclusion

Thank you for providing this opportunity to comment on the scope of Ecology's upcoming triennial review. Given the broad weaknesses in Washington's water quality standards and the ways in which improvements in the standards could support making significant progress in

maintaining and improving the quality of Washingon's waters, we urge Ecology to move forward in a timely fashion through this review and revision process.

Sincerely,

Nina Bell
Executive Director and on behalf of

John Woolley, President
Olympic Forest Coalition

Kurt Beardslee, Executive Director
Wild Fish Conservancy

Brett VandenHuevel, Executive Director
Columbia Riverkeeper

Attachments:

Washington State Forest Practices Clean Water Act Assurances Review Part 2: Can Qualitative Forest Practice Rules for Road Construction and Maintenance Provide Assurance that Quantitative Water Quality Standards Will be Achieved? Olympic Forest Coalition, Mike Haggerty, July, 2009

cc: Matthew Szelag, Washington Water Quality Standards Coordinator
EPA Region X

Jannine Jennings, Manager
Water Quality Standards Unit, EPA Region X