



# Northwest Indian Fisheries Commission

6730 Martin Way E., Olympia, Washington 98516-5540  
Phone (360) 438-1180

www.nwifc.org

FAX # 753-8659

October 29, 2012

Ted Sturdevant, Director  
Washington Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600  
[RuleUpdate@ecy.wa.gov](mailto:RuleUpdate@ecy.wa.gov)

ATTN: Toxic Cleanup Program  
RE: Comments on proposed amendments to Sediment Management Standards

The Northwest Indian Fisheries Commission (NWIFC) submits these comments on the proposed amendments to Washington State Sediment Management Standards (SMS) on behalf of NWIFC member tribes. The tribes retain treaty-reserved fishing rights that have been placed at risk by the state through the promulgation of inadequate standards for toxic discharge and cleanup. The proposed amendments to the SMS appear to have been written from the perspective of assisting Potentially Liable Persons (PLP), whose objective is to reduce their burden for toxic cleanup, instead of the more appropriate perspective of protecting the public health of the citizens of Washington, now and in the future. In order to meet the intent of the Model Toxics Control Act, the Clean Water Act, and other relevant environmental laws, the SMS are in need of a fundamental shift from how to make them easier to meet, towards the protection of public health and a clean and productive environment.

The enclosed comments, along with attachments and referenced materials, represent a consolidated set of comments on the SMS amendments based on input from toxic cleanup, water quality, and legal specialists.<sup>1</sup> The tribes' comments fall into four major issue categories: 1) failure to include a default fish consumption rate; 2) provisions that serve to whittle down protective standards in ways that pose an unacceptable risk to human health, particularly for tribes; 3) definitions, objectives, and procedures that unacceptably lower cleanup requirements; and 4) inconsistency with other regulatory requirements, such as the Federal Clean Water Act. Tribes also seek standards that not only maintain the status quo, but will support tribal consumption of fish and shellfish at restored and unsuppressed levels.

1. The failure to include a Default Fish Consumption Rate in the SMS perpetuates over-exposure to toxic contaminants in tribal communities.
  - a. **Reinstate a Default Fish Consumption Rate at or above the range recommended in version 1 of the FCR Technical Support Document.**

---

<sup>1</sup> NWIFC also supports, and hereby adopts by reference, the comments from the Center for Indian Law and Policy, Seattle University School of Law, on the FCR Technical Support Document Version 2.0 and the proposed SMS amendments.

Washington tribes, the NWIFC, and Columbia River Intertribal Fish Commission have submitted comments to Ecology on the 2011 version of the Fish Consumption Rate Technical Support Document, which are hereby incorporated by reference. In comments submitted to the record in January, 2012, the tribes indicated the need for a default fish consumption rate that would be at least as protective as the water quality standard adopted by Oregon of 175 grams per day, covering all affected species including salmon. Tribal comments on the 2011 version of the Technical Support Document indicated that the proposed range of 157-267 grams per day, which was recommended by Ecology's technical staff, represented a "step forward"-- even though it did not fully address the suppression of fish consumption from historical levels. Furthermore, tribes supported the position, put forth by Ecology, that it was important to have a consistent fish consumption rate in the state's SMS and water quality standards for regulatory purposes.

Instead of the step forward, and despite previous commitments, Ecology has taken a leap backwards by retreating from the establishment of a default fish consumption rate in rule. Ecology leaves the FCR and other crucial parameters up for grabs, to be determined at each site. This site specific approach guarantees that actual cleanup will be delayed while PLP's maneuver for lenient interpretations of the FCR and other exposure parameters. Ecology will have the burden of rehashing the science and policy debate at every site, thereby wasting significant taxpayer resources which could be more productively used for clean-up. Additionally, the site-by-site approach puts tribes and small communities at a disadvantage, since they will bear the burden of fighting to secure protective standards for each site that impacts them. The effort is likely to outstrip resources available to the tribes, leaving less protective requirements in place and perpetuating existing environmental injustice to the tribes and other groups who consume large amounts of fish.<sup>2</sup>

- b. In addition to reestablishing a numeric default FCR, the SMS should explicitly enable tribes to submit information and data that support higher fish consumption rates than the previously recommended default range of 157-267 grams per day, and that best available information must be considered in any site-by-site review by the Department of Ecology.**

Ecology originally proposed that a single default FCR be established in all state standards. However, the current proposal reflects a bifurcated, and largely inconsistent approach, which provides that FCRs will be treated differently in SMS as compared to the human health criteria of the surface water quality standards. To help rectify the potential lapses in protection created by this inconsistent approach, Ecology must include clear requirements to consult with tribes and incorporate existing and new information about fish consumption rates as studies are completed and analyzed. The inconsistency between the SMS and proposed Human Health Criteria in the surface water quality standards, and the abandonment of a consistent default FCR, also means that Ecology must consider site-specific rates that are higher than previous default recommendations. Newer studies indicate that current and historical fish consumption rates may exceed the recommended range (157-267 gpd) specified in the Technical Support Document version 1 due to the suppression of harvest. For example, the Lummi Nation recently completed a dietary study that recorded FCR's at 1985 levels (prior to the accelerated

---

<sup>2</sup> For additional information on the affects of the proposed RME, see NWIFC Letter to Mike Bussell, Director of the Office of Water, EPA region 10 re: EPA engagement in Washington's development of water quality standards and attending fish consumption rates ( September 2012) , hereby incorporated by reference.

suppression of salmon and associated listing under the Federal Endangered Species Act). The median rate in the Lummi study at the 1985 level of consumption was 383 grams per day per capita.<sup>3</sup>

The proposed default range of 157-267 gpd from the 2011 Technical Support Document is lower than traditional and historical levels, which were identified in the 2011 document as approximately 600 to 1,000 grams per day. The range is also lower than the 90<sup>th</sup> to 95<sup>th</sup> percentile fish consumption rate findings in multiple dietary studies by Washington and Columbia River tribes. Ecology must consider higher FCRs on a site-by-site basis. Recent studies by the Colville Confederated Tribes, Lummi Nation, and dietary studies that are planned or in progress will offer additional scientific data that must be formally considered in a site-by-site analysis of fish consumption rates under the SMS.

2. Reasonable Maximum Exposure parameters must protect the health of tribal fish consumers at historical, current and future levels.

- a. **Section 173-204-561(2)(b) must be revised to clearly reference tribal consumption throughout, including future use, and to ensure that high consumption opportunities for all species throughout all tribal treaty fishing areas are maintained.**

The proposed SMS state that cleanup will be set to protect those Washingtonians who are most exposed, given present and future uses of a site and the resources impacted by a site. The proposed SMS protections thus incorporate the concept of Reasonable Maximum Exposure (RME)(WAC 173-204-561(2)(b)(i)). The RME concept in the SMS is correct in recognizing that tribes have relied on fisheries resources here for thousands of years, and that tribal members are likely to be the most exposed to potential contaminants in fisheries resources. In WAC 173-204-561 "Sediment cleanup standards based on protection of human health" the proposed SMS appropriately define RME by instructing staff to determine RME by reference to "historical, current, and future tribal use of fish and shellfish." However, the proposed SMS then provide tools to undermine protection for the actual people represented by this exposure scenario as follows:

- i. WAC 173-204-561(2)(b)(ii) does not reference tribes.. The proposed SMS allow Ecology to substitute an "alternate" exposure scenario for the RME, by reference to a process that makes no mention of the word "tribal." Again, this possibility leaves tribes to fight to secure their protection at each site. **Any site throughout any tribal usual and accustomed area must have an RME based on tribal exposure scenarios.**
- ii. The standards fail to incorporate provisions that protect future users and high consuming tribal members. Reasonable Maximum Exposure is intended to reflect the 95<sup>th</sup> percentile of consumers, which are actual exposures of real people under realistic present or future conditions. Tribal dietary studies of fish consumption are neither hypothetical nor unrealistic—they are scientifically-designed, peer-reviewed dietary studies of tribal members who consume primarily locally-harvested fish. Ecology intends to establish exposure parameters based on a mix of high-end and average values. An RME for tribes must include high-end fish consumers, as tribes and their members live here and harvest and consume fish for their entire lives. Moreover, tribal exposure scenarios must include

---

<sup>3</sup> Freimund, J., M. Lange and C. Dolphin, 2012. Lummi Nation Seafood Consumption Study, Final Report. Lummi Indian Business Council. Bellingham, WA.

future, restored conditions of fish consumption at unsuppressed, historical or “heritage” rates, as tribes are legally entitled to by treaty with the United States Federal Government. Large scale restoration programs are in progress throughout the state and tribes are unwilling to write off degraded habitat areas from potential consumption scenarios. **SMS section 173-204-561 must reference future consumption scenarios as well as current.**

- iii. The Fish Diet Fraction is used to whittle down the fish consumption rate by setting standards site by site. The proposed SMS and the SMS guidance anticipate that the FCR reflecting a “tribal RME individual” may effectively be reduced by a regulatory concept called the Fish Diet Fraction (FDF). FDF is the portion of a person’s diet that “is obtained from the site or the general vicinity of the site.” A Fish Diet Fraction is applied to the applicable fish consumption rate; a FDF of 1.0 means no reduction to the FCR. However, Ecology includes provisions to reduce the FCR if the site is small or the habitat will not support sustainable quantities of the species at the determined FCR. As described in the Addendum, the SMS fail to assess the Fish Diet Fraction factor in the context of harvest at multiple sites, exposing tribal members to potential risk. The SMS also fail to address factors that could change the Fish Diet Fraction, such as changes in abundance, seasonal variation, permitting availability, and proximity to the reservation. The standards do not address how to communicate risks to tribal members on how to harvest according to this proscribed Fish Diet Fraction. **In summary, there is no justification for the application of a Fish Diet Fraction less than 1.0 in areas where tribes historically, currently, or potentially harvest fish and shellfish without posing an unacceptable risk of exceeding safe levels of exposure.**
- iv. The Site Use Factor (SUF) also reduces protective requirements by establishing rates for individual species’ use of individual sites. Site Use Factor is another tool (described further in the Addendum) that is being used to reduce the protective level of SMS requirements. The SUF refers to the percentage of time that a fish/shellfish is in contact with contaminants at the site based on the species’ life history and home range. Ecology’s proposed standards not only fail to look at consumption in the aggregate of contaminated sites, they attempt to further slice up the required level of site clean-up by separating by species, size of the site, and time of exposure. There is no scientific way to assess how much time a species has spent at a site or how much chemical burden a species has picked up in any specific geographic area, thus a site use factor is subjective and variable. Additionally, bioaccumulation varies species to species, life-stage to life-stage, and within the array of life history strategies of a single species, which may or may not migrate beyond the vicinity of the contaminated site. The Site Use Factor also fails to account for situations where contaminants are dispersed, resuspended, or transported to areas beyond the boundaries of a specific site. **In summary, there is no justification for the application of a Site Use Factor less than 1.0 in areas where tribes historically, currently, or potentially harvest fish and shellfish without posing unacceptable risk of exceeding safe exposure levels. The concept of applying a Site Use Factor using the concept of a fraction of the home range or the estimated duration of contact with a site should be eliminated from the SMS due to its potential to result in unprotective cleanups.**

To rectify the concerns above, we recommend modifying the language of § 561(2)(b) to eliminate those concepts which perpetuate the suppression of fish consumption rates, or set RME’s which are

not consistent with tribal rates. This may also require modifying § 561(2)(b)(i)(A) & (C) to eliminate the FDF and SUF modifiers.

3. The Proposed Two Tier Framework<sup>4</sup> for establishing cleanup standards undermines human health and ecological based standards.

a. **Sediment cleanup objectives, definitions, and standards should be structured toward actually cleaning up contaminated aquatic environments.**

The proposed Sediment Management Standards include several provisions that serve to reduce the burden of cleanup for PLPs by setting underprotective clean up standards. The two tier framework provides that cleanup standards will fall within the lower and upper bounds of the Sediment Cleanup Objectives (SCOs) and Cleanup Screening Levels (CSLs). SCOs and CSLs are determined by defaulting to the least protective criteria of several standards. This is problematic, because under most circumstances human health or ecological standards will not apply. Instead, cleanup standards will be derived from: practicable cleanup levels, the use of "natural" background levels that reflect existing contamination, "regional" background levels, and Practical Quantitative Limits (PQLs) which represent the median level of contaminants detectable with present technology. The low bar set by these definitions and objectives will mean that PLP's can walk away from contaminated sites without fully cleaning them up, and Washington residents will live with contaminated sites in perpetuity. The cleanup standards are particularly problematic when considering highly potent carcinogens such as dioxin, and high fish-consuming people, such as tribes. The following further explains the how the two tier framework works to undermine ecological and human health based standards:

- i. **Practicable versus possible cleanup levels:** The SMS allows Ecology to establish a site-specific cleanup level which permits higher concentrations of contaminants than what would be protective of human and ecological risk. The SMS indicate that the cleanup level be set "as close as practicable to the Sediment Cleanup Objective (SCO) based on technical possibility and adverse environmental impacts." The definition of "practicable" is thus an essential element of cleanup requirements, and unfortunately is not defined in terms of best efforts and technology. "'Practicable' means able to be completed in consideration of environmental effects, technical feasibility and cost." While it may be appropriate to recognize some bases for permitting contamination to remain at a cleanup site in amounts that exceed the SCO, at least on an interim basis, the proposed SMS authorize inappropriate factors, such as cost, as well, with the result that human and ecological health can be sacrificed in the name of providing cheaper cleanups.
- ii. **Natural Background:** The proposed SMS state that "'natural background' means the concentration of a hazardous substance consistently present in the environment that has not been influenced by localized human activities (WAC 173-204-200(27)). For example, several metals and radionuclides, naturally occur in the bedrock, sediment, and soil of Washington State due solely to the geologic processes that formed these materials, and the concentration of these hazardous substances would be considered natural background. Also low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout

---

<sup>4</sup> As defined by the proposed SMS rule amendments, and graphically demonstrated on page 11 of the Draft Sediment Management Standards Rule Proposed Amendments, Review version August 15, 2012 page 11.

much of the state due to global distribution of these hazardous substances. These low concentrations would be considered natural background, as would radionuclides. While it makes sense to refer to substances that “naturally occur” “due solely to the geologic processes that formed these materials” as natural background, the remainder of Ecology’s definition warps the word “natural.” Moreover, if Ecology is permitted to redefine natural background in this manner, it will alter our environmental baseline forever. If the “new natural” includes PCBs, all cleanups going forward will aim, at best, to reduce contamination to this new (contaminated) baseline. **Natural background definitions should be limited to natural, and not include widespread persistent contaminants introduced by anthropogenic activities.**

- iii. Regional Background (WAC 173-204-200(38)) refers to the level of current contamination present in the area—a vague geographic definition that is particularly confusing in combination with the unnatural definition of natural background. “Regional background” is vaguely defined as “the concentration of a contaminant within a department-defined geographic area that is primarily attributable to diffuse nonpoint sources, such as atmospheric deposition or storm water, not attributable to a specific source or release.” Discretion in applying this definition is left to Ecology with little specific guidance. Unfortunately, experience suggests that Ecology is prepared to consider areas that harbor significant contamination to serve as reference points for determining this sort of regional “background.” Moreover, the remainder of the definition incorporates significant ongoing contamination (e.g., from nonpoint sources such as storm water) and raises the possibility that cleanup requirements will spiral continually downward to less stringent levels as the regional background level deteriorates, similar to the definition of natural background. **The difference between natural background, area background, and regional background and the need for these distinctions should be clarified.**

Former members of the SMS advisory group indicate that the concept of Regional Background was intended to offer incentive for cleanup in an area that has been polluted by multiple sources, instead of waiting until all parties can clean up at once. However, the regional background definition does not make sense in light of pollution from stormwater and in tidally influenced areas, and further compounds the inconsistencies between SMS and Surface Water Quality Standards. **The SMS should reject the regional background definition, or at least clarify that it is an interim standard to be used only in remediation.**

- iv. Practical Quantitative Limits: The proposed SMS recognize that, for some pollutants, concentrations that are protective of human health and the environment are at levels lower than the limits of current detection capabilities (WAC 173-204-200(35); WAC 173-204-560(3)&(4)). **However, existing lab capabilities are not appropriate as a standard to use as a Sediment Cleanup Objective.** Ecology compounds this unacceptable use of lab techniques as standards, by determining PQLs as the median of current lab results, rather than the higher levels of detection. This strategy rewards mediocrity and fails to encourage improvements in detection technology, especially when used as a cleanup standard. Ecology also commits to reevaluate the PQL only every 3-5 years, removing incentives for more rapid improvements in detection technology by private labs. While it is appropriate to recognize current limitations on our ability to detect contaminants in the environment, Ecology’s approach punishes technological innovation and improvement and permits our cleanup standards to lag behind what is actually achievable – to the detriment of human

and ecological health. **PQL is not appropriate as a standard, and should be structured to provide incentive for better testing methodology.** Therefore, PQL should be modified as a definition, and removed from use as SCO and CSL. More discussion of the PQL issue is included in the Addendum to this letter.

4. The Proposed SMS amendments need to be consistent within the rest of the Chapter, as well as with the Model Toxics Control Act, State Surface Water Quality Standards, the Federal Clean Water Act, and with other local and tribal governments' standards.

**a. The Sediment Management Standards must be reviewed under the provisions of the Clean Water Act.**

The sediment management standards are water quality standards and therefore must be harmonized with other existing and pending surface water quality standards and reviewed by the federal Environmental Protection Agency. The proposed amendments are currently inconsistent with the mandates of the Clean Water Act, because they allow setting of cleanup standards that do not protect for human health in freshwater and marine environments. Therefore, the SMS should be reviewed as and cross referenced to state water pollution control standards, and the applicability of both the Clean Water Act and Model Toxics Control Act should be specified.

Addendum 3 describes in depth the reasons why the Sediment Management Standards must be harmonized with Washington's Surface Water Quality Standard and recalibrated to receive EPA approval in order to ensure that proposed rules protect designated uses and do not undermine the water quality standards or the Federal Clean Water Act. The proposed updates to the SMS constitute an update to water quality standards and must be reviewed by the Environmental Protection Agency. Tribes have already asked EPA to uphold their responsibilities under the Clean Water Act and to review the SMS standards for their ability to protect human health and the designated uses.<sup>5</sup>

**b. The Sediment Management Standards should specify provisions for applying water quality standards and other requirements of state and federal law on a consistent basis.**

The proposed SMS amendments of WAC 173-204-500 et. seq. must be consistent with the entire chapter. Specifically, part V amendments must be consistent with the laws that authorize the chapter, including the Water Pollution Control Act (WAC 173-204-100(1), must also conform to the goals established in the designated use policy of WAC 173-204-120(2). To accomplish these tasks, that part V amendment must include that these rules are promulgated pursuant to the RCW 90.48, the surface water quality standards, of WAC 173-201A and the Federal Clean Water Act. Amendments to ensure consistency are requested in WAC 173-204-500(1), (2), and (3). Specifically, the subsection 500(1) applicability must be revised to be consistent with the WAC 173-204-100 and & 120. Furthermore, WAC 173-204-500(3) should explicitly state that sediment clean up decision process shall include consideration of all applicable water quality standards, and that provisions in SMS shall not supersede any standards or laws that would otherwise require more stringent cleanup standards.

---

<sup>5</sup> see NWIFC Letter to Mike Bussell, Director of the Office of Water, EPA region 10 re: EPA engagement in Washington's development of water quality standards and attending fish consumption rates ( September 2012) , hereby incorporated by reference.

Ecology should also restore the original language in WAC 173-204-100(6) & 560(1). The November 2011 proposed draft rule language did not remove RCW 90.48 from the authorities of part V of the rules found in section 100. However, in the August 15, 2012 version of the proposed rules, Ecology has redacted RCW 90.48 from the WAC 173-204-100(6). The redacted rule language has been in place for over 21 years. It may have been removed because Ecology contends that they no longer need to submit the SMS to EPA for review and approval as water quality standards. Tribes contend that this argument is untenable, and that review under the Federal Clean Water Act is necessary (see Addendum 3).

**c. Ecology must include both marine and freshwater standards as WQS.**

Consistency is needed between freshwater and marine/estuarine environments so that Ecology can add all impaired waters/sediments to the 303d list of impaired water bodies and take action as necessary. Given that rivers are sources of sediment for marine and estuarine areas, the freshwater criteria play an important role in both fresh and marine water cleanups. Therefore, both fresh and marine waters must be considered and implemented as WQS. We are unaware of any sound basis for the marine/estuarine standards and the freshwater standards to have different regulatory status.

**d. Ecology's approach to establishing human health standards applies a different burden of proof versus the standards for ecological receptors. This inconsistency creates disparate treatment and provides for opportunities for abuse of discretion.**

Ecology's proposed approach also creates a disproportionate burden for tribes and members of the public to evaluate whether sediments in the state pose an unacceptable risk to human health. The difference in the approach to developing standards protective of human health, compared to the approach to protecting ecological receptors, repeatedly puts the burden of proof on those who are seeking to protect human health. It is inappropriate to leave it to the discretion of the site manager to choose which standards apply.

**e. Tribes, like other governments, can and do enact standards for environmental and human health protection, which should be incorporated in keeping with the intent of the Centennial Accord between the state of Washington and tribes.**

The proposed SMS refer to risk levels for marine and benthic organisms, human health, ecological bioaccumulative health, or standards set by other governmental entities. The last of these are known as "applicable, relevant, and appropriate requirements" or ARAR's. Both MTCA and the federal Superfund cleanup law provide for multiple governmental requirements, but MTCA fails to include the requirements of tribal governments. This omission is repeated by the SMS, as it states that only local, state, and federal laws are considered applicable. **Federal, state, local and tribal requirements should be applicable.**

**f. Periodic review and tribal consultation requirements should be specified in the SMS.**

The proposed SMS make no effort to expand existing provisions for periodic review, and allow for review "if resources permit" five years after the initiation of a cleanup action. The SMS should contain specific review requirements with timelines, consultation requirements, and evaluation of implementation and effectiveness. Periodic reviews should also incorporate review of new technologies

and information. The proposed standards provide few assurances that review and implementation of findings will occur on a timely basis.

### Concluding Remarks

At treaty times, tribes consumed all of their fish from local waters and still continue to obtain most of their fish from local sources. The tribes' reserved rights under the treaties and other legal agreements entitle them to continue to do so in perpetuity. Fish and shellfish are important sources of nutrition for tribal consumers. Additionally, fish and shellfish harvesting methods are traditions that are passed down through generations. Many tribal members would consume more fish and shellfish than they do at present, were these resources not depleted or contaminated. Tribes are working toward a future with restored ecosystems that support fisheries resources in abundant levels, with a variety of species that are safe to eat. Tribes thus have the intent, potential, and legal right to consume a mix of species of fish in the future.

The proposed amendments to the Sediment Management Standards fail to fully incorporate consideration of high fish consumption among tribal members, and leave treaty-reserved resources and tribal health at unacceptable levels of risk. The SMS are primarily directed at cleanup of existing contamination. This is an important goal, but the tribes remain concerned about the prevention of future pollution of fish and shellfish through water quality standards. The tribes are prepared to work with the Department of Ecology on the completion of toxic cleanup and water quality standards on a government-to-government basis to protect tribal rights and the health of future generations.

Sincerely,



Michael Grayum, Executive Director

Cc:

NWIFC Commissioners

EPA Region X: Dennis McLerran, Dan Opalski, Jim Woods, Angela Chung, Matt Szelag  
Kelly Susewind, Water Quality Program Manager, Ecology

Attachments:

Addendum 1: Site Use Factor and Fish Diet Fraction

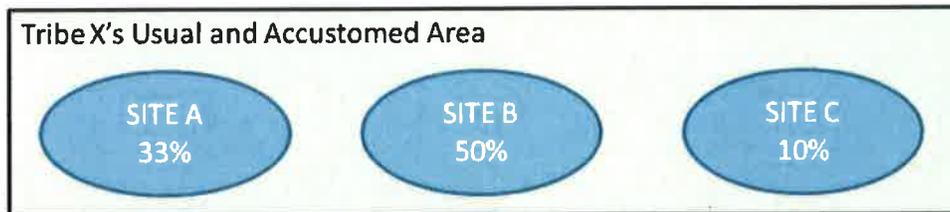
Addendum 2: Practical Quantitative Limits

Addendum 3: SMS and Federal Clean Water Act requirements

**Addendum 1 to NWIFC comments on Sediment Management Standards  
October 29, 2012  
Additional discussion on Fish Diet Fraction and Site Use Factor**

**a. Fish Diet Fraction (FDF)**

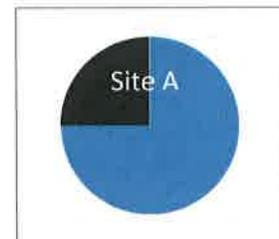
***Hypothetical Example of Fish Diet Fraction and Aggregated Risk to Tribes***



Tribe X has conducted dietary surveys indicating that the tribe has a fish consumption rate of 150 grams per day (about 5 oz. of fish per day), at the 80<sup>th</sup> percentile. Additional studies indicate that tribal citizens as a group get 33% of their fish from site A, 50% from site B, 10% from site C, and the rest comes from the open ocean. Site A has contaminated sediments and requires cleanup of toxic pollutants. Ecology has documentation that Tribe X eats 150 grams per day per capita, but they only get 33% of their fish from site A. Ecology thus assigns a fish diet fraction of 33% of the FCR to site A, and sets clean-up requirements accordingly. This allows pollutant levels to be 3 times higher at site A after cleanup than would a FDF of 1.0. However, if sites B and C are similarly contaminated, the permitted level of toxic would similarly be increased, allowing for toxic levels at twice as much for site B and 10 times as much for site C (assuming all else remains equal). Tribal members are not bound to harvest fish in the specified proportions, and frequently don't. An individual tribal member who consumed 100% of his 150 grams per day of fish from site C would be exposed to 10 times the allowable standard.

Fish Diet Fraction is one example of how the SMS is skewed to the perspective of Potentially Liable Parties, whose objective may be to reduce clean-up responsibilities, rather than an overall perspective of protecting public health for tribes and others who consume fish and shellfish at high quantities. The overall effect of Fish Diet Fraction is to decrease the protectiveness of the resulting cleanup standards. There is no justification for applying a diet fraction when the fish and shellfish in an individual's diet is currently or potentially obtained from one or more contaminated sites.

The Fish Diet Fraction also fails to consider how habitat restoration would affect required clean-up levels, and the potential for additional harvest opportunities and an increase in the fish consumption rate. If clean-up levels are determined for Site A based on an assumption that 25% of the habitat is built-out and will no longer produce fish and shellfish, the allowable toxic levels effectively serve as a cap on consumption in Site A, even if habitat is restored. Consumption of higher levels of restored fish and shellfish will increase consumer exposure to contaminants.

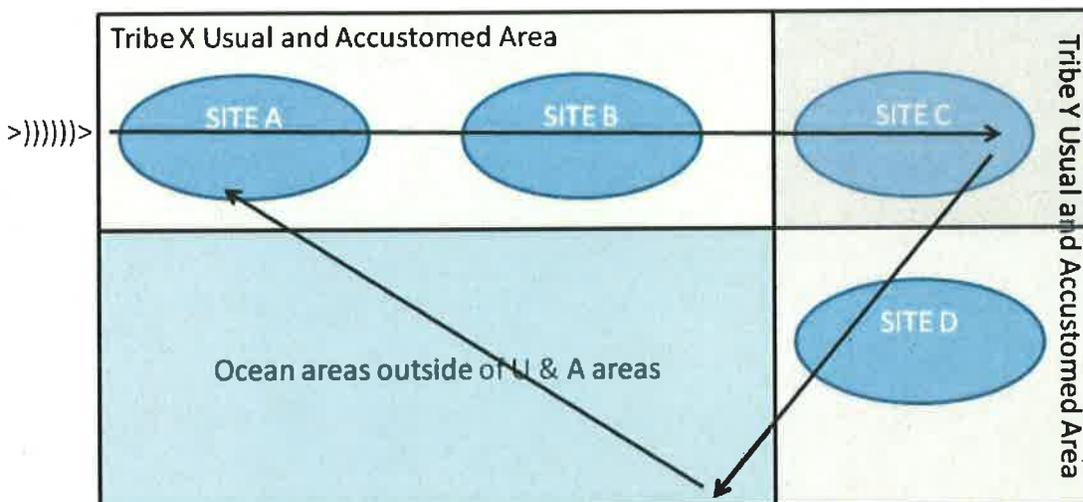


The Fish Diet Fraction fails to consider seasonal and periodic variations in abundance in fishing and harvesting areas. Tribal consumption does not necessarily follow a clean-cut fractional distribution, and can depend on the natural abundance of fish or shellfish in the area, permitting issues, as well as the site's proximity to the reservation. Also, trying to explain this to tribal members could be a risk communication nightmare since tribal members typically do not fish or gather shellfish in this manner.

## b. Site Use Factor (SUF)

Site Use Factor is a measure of a specie's use of a contaminated site. Again, the SMS standards look at each site in isolation from other sites and other pathways for exposure. Ecology reduces the calculation for toxic exposure based on the time a species spends at a site, and what percent of its range is comprised of the site. If each site cleanup is diminished due to the application of the Site Use factor, migratory species may accumulate higher concentrations if they pass through multiple sites. Additionally, there is no way to assess the amount of contaminants absorbed or how much time a creature spends at the site as a portion of its home range. The application of a site use factor to reduce the human health risk calculations is largely theoretical, and if applied to several species, would render the human health risk assessment meaningless and result in increased risk to human consumers. Examples are as follows:

Example 1: Migrating species and multiple sites.



Migratory species, such as salmon, may pass through multiple sites and multiple usual and accustomed areas. Salmon are essential sources of food for many Washington tribes. Application of a SUF to salmon is problematic in that salmon may transit multiple contaminated sites, have significant variability in their life history patterns, and bioaccumulate differently. Salmon may bio-accumulate more at different life stages—picking up a higher percent of body burden at site A, for example. (Comments submitted during the review of the FCR Technical Support Document version 1 contained more information and sources on contaminants in juvenile salmon.) Salmon may pass through several contaminated sites as they migrate. Some salmon species spend more time than others in freshwater and estuary environments. Even within species, there are differences in life history strategies that represent different levels of exposure—Puget Sound Chinook for example have some portions of their populations that migrate out to the Pacific while others remain within Puget Sound for their entire life cycle. The assumption that the bulk of contaminants in salmon tissue come from sources outside of contaminated sites in Washington is not universally supportable. This assumption does not explain why, for example, Puget Sound Chinook have been documented as having higher levels of legacy contaminants than Chinook from other parts of the Pacific Northwest. The findings indicate that contaminant exposure and uptake is higher in

Puget Sound freshwater and estuarine environments, which are under Ecology jurisdiction. Ecology's willingness to assert that contaminants in salmon tissue are due primarily to sources other than a contaminated site suggests a bias toward assumptions that favor Potentially Liable Parties (PLP's) rather than the protection of human and ecological health.

Example 2: Dungeness crab and the "home range" concept. A Dungeness crab has a home range of 2 square miles. If there is a contaminated site within the range and the crab has a high level of the contaminants of concern, logically the source should be assumed to be the site. However, if the site area is 120 acres, it represents less than 1/10 of the range and a site use factor of 0.1 would likely be applied. The site would thus be considered to be only responsible for 10% of the burden and would be cleaned to 90% less stringent standards.

Example 3: Independent calculation of the SUF in separate sites within a home range. Over a period of several years, Ecology independently evaluates 2 sites. Each site represents one-half of the home range of a target species. By using a SUF of 0.5 for each site, each cleanup decision would allow contamination to remain at twice the level that was needed to protect the species and/or human consumers, even though the entire home range would have been regulated by the cleanup. Underestimating risk for resident species using a Site Use Factor can result in inadequate cleanups.

## **Addendum 2 to NWIFC comments on Sediment Management Standards**

**October 29, 2012**

### **Additional discussion on the use of PQL as a standard for toxic cleanup**

Based on the information in the memorandum to file from Joyce Mercuri and Teresa Michelsen dated 4/12/12 referring to establishing practical quantitation limits(PQL) for dioxin mixtures, the proposal indicates that the 17 individual dioxin/furan congeners were multiplied by their respective TEF and added together to develop a TEQ value for the PQLs and MDLs.

Referring the 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds;

Where there was a concern expressed about the application of the TEF/TEQ approach to abiotic environmental matrices such as soil, sediment, etc. The present TEF scheme and TEQ methodology is primarily meant for estimating exposure via dietary intake situations because present TEFs are based largely on oral uptake studies often through diet. Application of these 'intake or ingestion' TEFs for calculating the TEQ in abiotic environmental matrices has limited toxicological relevance and use for risk assessment, unless the aspect of reduced bioavailability and environmental fate and transport of the various dioxin-like compounds are taken into account. If human risk assessment is done for abiotic matrices it is recommended that congener-specific equations be used throughout the whole model, instead of using a total TEQ-basis, because fate and transport properties differ widely between congeners.<sup>2</sup>

This indicates that the attempted application of TEF modifiers to a PQL standard addressing sediments or any other media is not an appropriate use of the methodology and would lead to an inaccurate conclusion as to risk, they therefore recommend if abiotic matrices are attempted only congener specific equations be used instead of using the TEQ-basis. Congener specific equations do not include the use of TEF modifiers.

Using the TEF values outside of the equation is unreliable because TEF estimates represent a low-confidence interim approach to characterizing the highly variable toxicities of dioxin compound mixtures. TEF values are not precise. Individual estimates may range over several factors of ten. Moreover, the research upon which they are based is of variable quality and quantity. The values are frequently set using single compound studies that result in ignoring important interactions that may add or subtract from their toxicities.<sup>3</sup>

All TEF values are assumed to vary in uncertainty by at least one order of magnitude, depending on the congener and its REP distribution. Consequently, a TEF of 0.1 infers a degree of uncertainty bounded by 0.03 and 0.3. For a TEF value of 0.3, a degree of uncertainty bounded by 0.1 and 1 was used. Thus, the TEF is a central value with a degree of uncertainty assumed to be at least +/- half a log, which is one order of magnitude.<sup>2</sup>

Furthermore many of the TEF values are not the result of studies but are based upon the location of the chlorine atoms in the molecular structure of the particular congener. This being the case there is no consensus of confidence in the individual values. The consensus is that though the knowledge of the individual potency of the congeners is limited and that their synergistic or antagonistic effects are not completely known the total TEQ when compared to an equal amount of 2,3,7,8,TCDD has equal

predictive effects. The point being that the end result of the TEF/TEQ method is the 2,3,7,8,TCDD toxicity model.<sup>4</sup>

2,3,7,8,TCDD being the equivalency standard the PQL would be logically be that for 2,3,7,8,TCDD not a new number resulting from the various congener TEF modified PQL values.

### Reasonable PQL Standard

The next issue is the establishing “reasonable” a PQL standard based upon the EPA methods 1613B and 8290 as proposed using a rounded median value of the mid-range TEQ/PQLs sets a president of average (reasonable) PQL standard that does not give testing labs any motivation to improve their technological standards and lower the PQL. Based upon the Table 1 values for the method 1613B the exclusion of the (4) 11.4ppt PQLs seems appropriate as it is clearly stated that even those labs indicated that it is feasible to reach lower a PQL, and have chosen not to. This supports the theory that *without motivation many labs will only meet the minimum standard and not improve their technology and will result in stagnate cleanup standards*. This indicates that use of analytical detection levels is inappropriate as a standard as it is highly variable among labs.

Your exclusion of the (3) lower values of 2.3ppt appears to be penalizing those labs that are lowering the analytical detection levels resulting in the omission of 41% of the lower detection limit values which results in a Median value of 5.2ppt which is higher that the dredged material management standard of 4 ppt. This would result in a Department of Ecology accepted standard that is mediocre at best, leaving no motivation for labs to improve their technology. This further demonstrates why the National Toxics Rule framers came to the conclusion about analytical detection levels that they did, discounting the use of measuring techniques as a standard.

Instead, Ecology should use the lowest replicable value for the PQL, which in this case is 2.3 ppt. General scientific principle dictates that if a value or outcome can be replicated multiple times using the same method, then it is deemed valid. Even Ecology’s definition of a PQL incorporates this: “the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine lab operating conditions, using department approved methods” (WAC 173-340-200). In this case, multiple labs were able to achieve 2.3 ppt. Ecology claims that “very few labs are capable of reaching these levels,” however four of the results shows 2.3 as a value using both methods. Ecology brings up the issues of method blank contamination as well as real-world sample interferences for not choosing the 2.3 ppt value, yet it does not explain how Ecology’s selection of a PQL would resolve these issues.

Given that cost and other factors may be used to modify remedial action levels above risk- or effect-based concentrations, cleanup levels may result in significantly higher concentrations than what should be considered protective. The potentiality exists for a cleanup to conceivably use 50ppt for Dioxin remediation cleanup levels, which is clearly not protective of human health or marine mammals. Without further studies identifying the correlation of toxicity of dioxins in sediments and ingestion toxicity levels used in the TEQ methodology this proposed method couldn’t be considered protective with any degree of certainty, and is not supported by the bench mark 2005 WHO re-evaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds.

This proposed solution isn't considering the new information that indicates toxicity magnifications resulting from interactions of certain PCBs with certain PBDEs. "Mixtures of each PBDE congener with PCB-126 showed additive effects at threshold concentrations, and synergistic effects at higher concentrations. These results emphasize the concept that the toxicity of xenobiotics may be affected by possible interactions, which may be of significance given the common coexposures to multiple contaminants".<sup>5</sup> Additionally the Ecology rule doesn't add the Dioxin-like PCBs to the Dioxin TEQ formula which results in a potentially less protective human health standard.

These proposed changes are not protective and we do not support their use. In closing we would like to remind Ecology:

*Analytical detection limits have never been an acceptable basis for setting standards since they are not related to actual environmental impacts. The environmental impact of a pollutant is based on a scientific determination, not a measuring technique which is subject to change.*<sup>1</sup>

## REFERENCES

1) National Toxics Rule preamble 40 CFR

2) The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds Martin van den Berg,<sup>1</sup> Linda S. Birnbaum,<sup>2</sup> Michael Denison,<sup>3</sup> Mike De Vito,<sup>2</sup> William Farland,<sup>4</sup> Mark Feeley,<sup>5</sup> Heidelore Fiedler,<sup>6</sup> Helen Hakansson,<sup>7</sup> Annika Hanberg,<sup>7</sup> Laurie Haws,<sup>8</sup> Martin Rose,<sup>9</sup> Stephen Safe,<sup>10</sup> Dieter Schrenk,<sup>11</sup> Chiharu Tohyama,<sup>12</sup> Angelika Tritscher,<sup>13</sup> Jouko Tuomisto,<sup>14</sup> Mats Tysklind,<sup>15</sup> Nigel Walker,<sup>16</sup> and Richard E. Peterson<sup>17</sup> *Toxicol. Sci.* (October 2006) 93 (2): 223-241. doi: 10.1093/toxsci/kfl055 First published online: July 7, 2006

3) Dioxin Toxicity and Toxic Equivalency Factors: The Importance of Getting it Right, Alexander Clark, reference: Van den Berg, M., Birnbaum, L., Bosveld, B.T.C., Brunstrom, B., Cook, P., Feeley, M., Giesy, J.P., Hanberg, A., Hasegawa, R., Kennedy, S.W., Kubiak, T., Larsen, J.C., van Leeuwen, F.X.R., Liem, A.K.D., Nolt, C., Peterson, R.E., Poellinger, L., Safe, S., Schrenck, D., Tillitt, D., Tysklind, M., Younes, M., Waern, F., and Zacharewski, T. (1998). Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans and for Wildlife. *Environmental Health Perspectives* 106, 775

4) Dose-Additive Carcinogenicity of a Defined Mixture of "Dioxin-like Compounds" Nigel J. Walker,<sup>1</sup> Patrick W. Crockett,<sup>2</sup> Abraham Nyska,<sup>1</sup> Amy E. Brix,<sup>3</sup> Michael P. Jokinen,<sup>4</sup> Donald M. Sells,<sup>5</sup> James R. Hailey,<sup>1</sup> Micheal Easterling,<sup>2</sup> Joseph K. Haseman,<sup>1</sup> Ming Yin,<sup>2</sup> Michael E. Wyde,<sup>1</sup> John R. Bucher,<sup>1</sup> and Christopher J. Portier<sup>1</sup> *Environ Health Perspect.* 2005 January; 113(1): 43-48. Published online 2004 October 19. doi: [10.1289/ehp.7351](https://doi.org/10.1289/ehp.7351) PMID: PMC1253708

5) Synergistic interactions between PBDEs and PCBs in human neuroblastoma cells. Pellacani C, Tagliaferri S, Caglieri A, Goldoni M, Giordano G, Mutti A, Costa LG. *Source Environ Toxicol.* 2012 Mar 20. doi: 10.1002/tox.21768. [Epub ahead of print] Department of Human Anatomy, Pharmacology, and Forensic Sciences, University of Parma Medical School, Via Volturmo 39, 43100 Parma, Italy. [claudia.pellacani@unipr.it](mailto:claudia.pellacani@unipr.it).

### **Addendum 3 to NWIFC comments on Sediment Management Standards**

**October 29, 2012**

#### **Additional discussion on the relationship of SMS to Surface Water Quality Standards and the need for federal review**

**The Sediment Management Standards (SMS) must be harmonized with Washington's Surface Water Quality Standard and recalibrated to receive federal EPA approval in order to ensure that proposed rules protect designated uses and do not undermine the water quality standards or the federal Clean Water Act.**

Ecology must undertake the task of revising the RME, PQL, and background definitions of the SMS to accomplish harmonization of sediment clean up rules with water quality standards (WQS)<sup>6</sup> and the federal Clean Water Act (CWA)<sup>7</sup>. This request is not merely academic, but intended to ensure regulatory consistency and rules that ultimately protect human health and the designated uses of both marine and freshwaters. If the SMS are not harmonized, than promulgation of new SMS rule language will allow for cleanup standards determined by factors other than pollutant threshold impact on aquatic species and human health. These proposed default standards are largely driven by background definitions and PQL, which serve to modify existing surface WQS, undermine protection of designated uses, and therefore subject Ecology rules to disapproval by the Environmental Protection Agency (EPA). In turn, disapproval will only cause further delay to much needed environmental protections for human health and aquatic ecosystems in Washington State.

- a. Proposed updates to the SMS could modify water quality standards, and are subject to EPA review and (dis)approval.

EPA is obligated to review those laws and standards which have the effect of modifying water quality standards<sup>8</sup> or undermining implementation of those standards.<sup>9</sup> In a recent correspondence to Mike Bussell, the Director of the Office of Water at the EPA, the NWIFC requested EPA's timely review of the SMS. The NWIFC requested that EPA exercise their nondiscretionary duties under the §303(c)(4)(A)<sup>10</sup> of the CWA to review the SMS updates, because the SMS are integral to protecting the designated uses of state water quality standards— particularly salmon and shellfish which the NWIFC member tribes have treaty-reserved rights to harvest.<sup>11</sup> The NWIFC letter also points out that the management and quality of sediments is inextricably linked to the health of the aquatic ecosystem, water quality, and fish and shellfish. Therefore, proposed changes to the SMS, which result in background or PQL driven cleanup levels and or risk-based concentrations determinations that are less stringent than existing SMS or existing or pending water quality standards, will have the effect of modifying state water quality standards. These modifications may also serve to impede delisting of state waters currently listed as impaired for both sediments and water quality on Washington's 303(d) list. The comments contained in the NWIFC letter to Mike Bussell are hereby incorporated by reference.

---

<sup>6</sup> WAC-173-201A-010 et seq.

<sup>7</sup> 33 USC § 1251 set seq.

<sup>8</sup> See e.g. *Miccossukee Tribe of Indians of Florida v. EPA* 105 F.3d 599 (11<sup>th</sup> Cir. 1997); see also *friends of Merry Meeting Bay v. Olsen*, 839 F.Supp 2d 366 (D. Me Mar. 16, 2012)

<sup>9</sup> See also *Nw. Env'tl. Advocates v. EPA*, 3:05-CV-01876-AC, 2012 WL 653757 (D. Or Feb. 28, 2012)

<sup>10</sup> 33 USC § 1313(c)(4)(A)

<sup>11</sup> See Letter from Mike Grayum to Mike Bussell, Re: EPA engagement in Washington's development of water quality standards and attending fish consumption rates, September 7, 2012.

- b. Ecology acknowledges that SMS are in fact water quality standards to be reviewed and approved by EPA.

The concept that the SMS are directly connected to the water quality standards is not new. Ecology's 1996 SMS rules directly state that the purpose of the SMS is to:

manage waste discharges and sediment quality so as to protect existing beneficial uses and move towards attainment of designated beneficial uses as specified in section 101 (a)(2) of the federal Clean Water Act (33 USC 1251, et seq.) and chapter 173-201 WAC, the Water quality standards for surface waters of the state of Washington.<sup>12</sup>

A further demonstration of the SMS integration with CWA driven goals is that Ecology uses sediment criteria to list water bodies on their § 303(d) list of impaired waters.<sup>13</sup> For example, Washington State's 2008 Water Quality Assessment lists numerous water body segments as category 5 or "impaired" due to sediment bioassays which did not meet SMS criteria. Ecology has also utilized the CWA process of conducting Total Maximum Daily Loads (TMDLs) for the purpose of bringing applicable pollutant parameters that exceeded SMS into compliance with the water quality standards.<sup>14</sup> Ecology was able to apply this authority to develop a TMDL because the SMS fell under the purview, and applicability of 33 USC §1313(d).

- c. EPA acknowledges that SMS are in fact water quality standards, and are subject to review and approval.

EPA also acknowledges the role of SMS in protecting water quality and Washington's designated uses. Over the last two decades EPA has given several CWA approvals related to the SMS. In 1991, SMS were adopted by EPA as Water Quality Standards. In 1999, EPA sent a letter to Ecology further underscoring that the SMS were considered water quality standards.<sup>15</sup> Finally, since at least 1996, EPA has regularly reviewed and approved Ecology's 303(d) list of impaired waters which included those waters impaired by sediments not meeting criteria. In fact, in 1998, EPA partially disapproved the 303(d) list on the basis that Ecology failed to include waters that violated SMS, stating:

EPA disapproves not listing those waters because data showed that the State's sediment quality Standards had been violated and, based on the State's 303(d) listing policy, these waters need to be listed.<sup>16</sup>

---

<sup>12</sup> WAC 173-204-120(2)

<sup>13</sup> Washington State's Water Quality Assessment is available at <http://apps.ecy.wa.gov/wats08/Default.aspx>

<sup>14</sup> Bellingham Bay Contaminated Sediments Total Maximum Daily Load, Submittal Report Prepared by: By Pam Elardo, P.E. Washington State Department of Ecology Water Quality Program September 2001 Publication No. 99-58-WQ.

<sup>15</sup> See Letter from Randall F Smith, Director of Office of Water, EPA R10 to Megan White and Jim Pendowski, Department of Ecology, in which EPA discusses which standards are applicable under the CWA in 1999.

<sup>16</sup> See letter from Randal Smith, Director of the Office of Water, EPA Region 10 to Megan White Water Quality Program Manager, Department of Ecology, Re: partial approval of the 1998 303(d) list, August 25, 1999, available at <http://www.ecy.wa.gov/programs/wq/303d/1998/AppDisapp.pdf>

Finally, EPA has also exercised CWA approval authority over TMDLs, which were developed for the sole purpose of addressing 303(d) listings based on violations of the SMS.<sup>17</sup>

- d. EPA's recent guidance underscores that the SMS proposed rules are actually revised water quality standards that need to be calibrated to protect designated uses.

EPA has recently established a conservative four part test in establishing whether a specific provision must be mandatorily reviewed and (dis)approved by the agency.<sup>18</sup> Although case law in the Northwest suggest a broader interpretation of EPA's review and approval authority over water quality standards, the guidance nonetheless further demonstrates that SMS fall squarely within the purview of EPA authorities. EPA's guidance questions are answered in the context of the SMS to further clarify that Ecology's standards are, and have the affect of modifying water quality standards and therefore need to be reviewed and approved:

*Is it a legally binding provision adopted or established pursuant to state law?*

Yes. See WAC 173-204-100 demonstrating that the SMS are established pursuant to the Model Toxics Control Act, Water Pollution Control Act, and the Water Resources Act.

*Does the provision address designated uses, water quality criteria (narrative or numeric) to protect designated uses, and/or antidegradation requirements for waters of the United States?*

Yes. See WACT 173-201-120 which establishes that the purpose of the SMS is to, *inter alia*, protect designated uses.

*Does the provision express or establish the desired condition (e.g., uses, criteria) or instream level of protection (e.g., antidegradation requirements) for waters of the United States immediately or mandate how it will be expressed or established for such waters in the future?*

Yes. Sediment criteria are established through chemical specific calculations which are determined by human health, and protection of aquatic species.

*Does the provision establish a new WQS or revise an existing WQS?*

Yes. The proposed SMS revise both numeric criteria for aquatic life and human health as well as the antidegradation standards by proposing new cleanup levels based not on designated use protection, but instead on background definitions and PQL. As previously stated the SMS form the basis for listing water bodies in violation of the CWA. However, under the rubric of the proposed SMS, cleanup standards will be based on PQL and background definitions, and not necessarily on the criteria that was used as the basis to list the waters with impaired sediments. The net result is that the various default criteria, such as PQL and background definitions allow the Ecology to modify sediment standards based on the extent of surrounding pollution or certain technological/economic considerations such as the ubiquity/affordability of laboratory detection methods. This has the effect of creating new or modified standards that are not based on protection of designated uses, and setting clean up targets that are inconsistent with the standards for surface waters, or the criteria originally used to place the sediments on Washington's 303(d) list of impaired waters.

---

<sup>17</sup> According to Ecology's TMDL website, EPA approved the Bellingham Bay Sediment TMDL on December 31, 2001.

<sup>18</sup> See EPA Guidance What is a New or Revised Water Quality Standard Under CWA 303(c)(3)? - Frequently Asked Questions, October 2012 available at <http://water.epa.gov/scitech/swguidance/standards/cwa303faq.cfm>

In summary, even when viewed through the conservative lens of EPA's guidance, the proposed SMS are clearly within the scope of EPA's nondiscretionary review and approval authority.

- e. SMS are integral in the protection of designated uses, because sediment quality directly affects water quality and aquatic life.

The SMS are integral element of protection and clean up of the aquatic ecosystems because the quality of sediments directly affects both chemical water quality and aquatic species. This relationship has been studied in both the context of equilibrium partitioning and sediment threshold concentrations on aquatic species. Ample science exists which demonstrates impacts to benthic invertebrates and fish.<sup>19</sup> The EPA website serves as a clearinghouse of agency data and studies on the impacts of contaminated sediments on water quality and aquatic species. That data and studies is incorporated here by reference.<sup>20</sup>

- f. PQL and background defaults must be eliminated from SCO and CSL determinations in order to protect the designated uses.

The federal Clean Water Act, the SMS, and surface water quality standards direct that the purpose of sediment and water quality standards is ultimately to ensure the protection of designated uses. However, according to proposed rules the current construction of the sediment cleanup objectives (SCO) and cleanup screening levels (CSL) - the upper and lower bounds of the clean up criteria - will largely be determined by PQL and regional and natural backgrounds, and will not be based on protection of aquatic species. This is simply because the proposed rules allow the setting of upper and lower clean up limits on the least protective of three different standards: background, risk based or PQL. Ecology's own documents explain how this works.

Ecology expects the proposed rule to result in more efficient determination of cleanup standards, though in the short term the cleanup level is likely to be based on background concentrations (CSL = regional background and SCO = natural background) because risk based levels are typically more conservative than background.

Under the proposed rule amendments, some cleanup actions for sediment sites may not require active remedial actions to reduce contaminants to the level that would be required under the baseline (because the baseline results in a cleanup standard of natural background, while the proposed rule amendments result in a cleanup standard potentially as high as regional background). This

---

<sup>19</sup> See e.g. Meador, James, An analysis in support of tissue and sediment based threshold concentrations of polychlorinated biphenyls (PCB) to protect juvenile salmonids listed by the Endangered Species Act, October 13, 2000. See also EPA

<sup>20</sup> See EPA's list of technical studies and methodologies regarding contaminated sediments and impacts to water quality available at [http://water.epa.gov/polwaste/sediments/cs/techres\\_contaminants.cfm](http://water.epa.gov/polwaste/sediments/cs/techres_contaminants.cfm)

could result in higher risks for human health and the environment under the proposed rule amendments as compared to the baseline.<sup>21</sup>

The simple solution to this problem is to eliminate PQL and regional and natural background definitions from consideration of site cleanup levels. This would have the effect of establishing SCO and CSLs that were based upon human health risks and ecological bioaccumulative narratives calibrated to protect high fish consuming members of the public and aquatic species, including those reserved by treaty and protected by the federal Endangered Species Act. This would also have the effect of preventing the proposed SMS from removing cleanup liability from PLPs merely because local pollution problems are prevalent, and cleanup levels will be established to those degraded levels.<sup>22</sup> In other words, calibrating the SMS to achieve protection of designated uses as required by the CWA sets clean up goals to protect and restore aquatic environments, instead of setting clean up levels that maintain the status quo of the degraded area.

- g. To further ensure CWA compliance and protection of public health; Risk-based concentrations should be calibrated to protect human health and the designated uses.

In addition to eliminating the PQL and background defaults, Ecology must ensure that site specific cleanup criteria are chosen at levels which protect salmon and high fish consumers. To accomplish this, Ecology rules must encourage clean up calculations based on biota-sediment accumulation factors (BASF) approach in addition to relying upon, equilibrium partitioning.<sup>23</sup> These methods are more likely to be effective at setting clean up levels that protect endangered species, and more accurately reflect the sub lethal impacts of pollutants such as PCBs on all life stages of salmon.<sup>24</sup>

In the context of human health, risk-based concentrations must be calculated with a numeric default rate in excess of 175 grams per day in order to protect the health of Washington's tribal members. The current approach of establishing a RME, in part by utilizing a fish diet fraction and site use factors, unjustly reduces fish consumption rates to levels that are not representative of the tribal consumption rates and further contributes to the factors which suppress local fish consumption. The RME approach also establishes criteria that will not accurately reflect the reality of accumulative exposure patterns, and also sets less stringent standards, allowing toxic contaminants to remain in the environment. Under the proposed RME rubric, contaminated sites that do not support safe consumption of fish are afforded less stringent standards merely because the current local environmental conditions do not support safe consumption (SUF applied). According to Ecology's rules these sites should not be cleaned up to levels that will once again support a viable consumption, because clean up is based in part on what can be consumed locally.<sup>25</sup> In other words, the proposed SMS yet again establish clean up goals that merely perpetuate the status quo degraded environment and fail to work toward achieving ecological conditions that would allow local fish to be safely consumed. This type of standard setting is directly

---

<sup>21</sup> Department of Ecology, Preliminary Cost-Benefit and Least Burdensome Alternative Analyses *Chapter 173-204 WAC Sediment Management Standards* August 2012

Publication no. 12-09-051

<sup>22</sup> See comments submitted by the Indian Law and Policy Center, incorporated herein by reference.

<sup>23</sup> Meador, J. supra.

<sup>24</sup> Id.

<sup>25</sup> For additional examples see comments from the Indian Law and Policy Center.

contrary to the explicit statutory goals of the CWA<sup>26</sup> and the aims of the state water quality standards – fishable waters.

In summary, SMS fall squarely within the purview of EPA review and approval authority under the CWA. Ecology's Toxic Clean Up program must therefore work to ensure that the SMS rules are calibrated to meet the goals of the CWA, in order to receive approval. To develop approvable standards, avoid delayed rule implementation and/or federal intervention, Ecology must eliminate PQL and background defaults, and establish risk-based criteria at levels which protects the designated uses and human health.

---

<sup>26</sup> See 33 USC § 1251