Comments on the State's Proposed Rule for Human Health Criteria and Implementation Tools in WA State Water Quality Standards

TO: **Washington Department of Ecology, Water Quality Program**

ATTN: swqs@ecy.wa.gov
Cheryl Niemi
Washington State Department of Ecology
Water Quality Program
P.O. Box 47600, Olympia, WA 98504-7600

RE: Proposed Amendments to Water Quality Standards for Surface Waters of the State of Washington – Chapter 173-201A WAC

SUBM: March 23, 2015

Northwest Indian Fisheries Commission

6730 Martin Way E. Olympia, WA 98516-5540

TABLE OF CONTENTS

Introduction 3

Human Health Criteria (HHC) 5

- **I. Undue Delay by the State of Washington in Adopting Human Health Criteria** 5
- **II. Fish Consumption Rates** 23
- **III. Cancer Risk Level** 53
- **IV. Body Weight** 77
- **V. Drinking Water Intake** 81
- **VI. Bioaccumulation Factors** 82
- **VII. Relative Source Contribution** 85
- **VIII. Special Chemical Situations and other Provisions** 91
  - **A. Arsenic** 92
  - **B. Mercury** 105
  - **C. Polychlorinated Biphenyls (PCBs)** 113
  - **D. Dioxins** 117
  - **E. State Adoption Of Existing NTR Criteria - The "Anti-Backsliding Policy Overlay"** 119
  - **F. Federally Required Protection of Downstream Uses** 123

Implementation Tools 125

- **I. Compliance Schedules** 125
- **II. Variances** 132
- **III. Intake Credits** 140

Appendices 147

INTRODUCTION

The attached comments to the State's Draft Rule for Human Health Criteria and Implementation Tools in WA State Water Quality Standards were prepared on behalf and at the behest of the 20 member treaty tribes of the Northwest Indian Fisheries Commission, with contributions from other tribes in Washington and Oregon. The comments were approved at the March 19, 2015 meeting of the Northwest Indian Fisheries Commission. All materials cited in this document are hereby incorporated in the rulemaking document by reference. These materials can be made available upon request. Additionally, a digital file was hand delivered to the Department of Ecology on March 23rd, which includes references cited and additional materials that support the statements and positions herein. These additional materials are provided for Ecology's further consideration in the course of rulemaking decisions. A copy of this file will be stored at the Northwest Indian Fisheries Commission and can be made available for duplication should the original become unavailable. These comments do not supercede the input or recommendations submitted by our individual member tribes to the rule docket.

Governor Inslee and the Department of Ecology have stated that there is a linkage of the proposed state standards to other programmatic and legislative efforts to reduce toxic chemicals in Washington waters. While tribes support the development of a comprehensive toxic reduction strategy, tribes also emphasize that a rule for revised water quality standards, including human health criteria based on existing data and current knowledge, is critical to meaningful toxics reduction work. Tribes therefore do not see the pending legislative effort to be linked to rule-making for water quality standards, and consider the standards as a stand-alone action by the state of Washington.

These comments pertain to the January 12, 2015 draft state water quality standards and associated supporting documents issued by the WA Department of Ecology. The comments and all materials referenced and/or attached constitute a record demonstrating that the state of Washington's proposed rule fails to protect beneficial uses of water under the Clean Water Act, a responsibility delegated to the state from the US Environmental Protection Agency. Moreover, the state's proposal fails to respect the state's obligation to honor the treaty rights of Pacific Northwest tribes.

HUMAN HEALTH CRITERIA (HHC)

I. Undue Delay by the State of Washington in Adopting Human Health Criteria

A. Narrative/Overview

Tribes and tribal consortiums have provided information to the state for over 20 years documenting that the fish consumption rate used in state standards is grossly under-representative of consumption rates in tribal communities. Tribes raised the issue repeatedly in Triennial Reviews of state water quality standards over the last decade, and the state acknowledged and committed to addressing the deficiency in the 2010 review. Since 2011, the state has repeatedly delayed or changed course in the development of a fish consumption rate in state standards, largely at the behest of industry intervention. The Department of Ecology has pivoted the rule-making process to establish a default fish consumption rate back and forth between the Water Quality Program and the Toxics Cleanup Program. Since July 2012, the state has breached their written commitment to develop the HHC in water quality standards three consecutive times. Washington State's failure to discharge their delegated duties under the Clean Water Act has been so egregious that the Regional EPA Administrator has notified the state that the EPA is commencing federal rule promulgation for the National Toxics Rule (NTR) in Washington.

Tribes have been waiting a long time for revised human health criteria, but they have also asked for standards that will improve protective benefits and reduce exposure to toxic chemicals. Although data indicate much higher levels of fish consumption, tribes indicated that they viewed a compromised value of at least 175 g/day as a step forward from existing standards, provided that other criteria were not weakened—in particular the cancer risk level of one-per-million (10^{-6}). Now that the state finally appears poised to issue a rule, it also appears that industry intervention and political response have influenced the choice of criteria values—trading off more protective fish consumption rates for less protective cancer risk levels and other criteria. The state contends that other toxic reduction efforts are needed, an objective that tribes support—but not as a substitute for protective

standards. Tribes continue to seek timely completion of protective water quality standards to anchor state regulatory and programmatic efforts towards toxic reduction.

Note: Please continue to part I.C. Detailed Chronology for additional citations and references.

1. **Washington State has unduly delayed the adoption of revised human health criteria, thereby subjecting tribal communities to continued harm from exposure to toxic chemicals.**

    a. Early studies of tribal fish consumption rates in 1994 to 1996 documented that the NTR value of 6.5 grams per day grossly underestimated tribal fish consumption in Washington. As described further in the attached chronology, regional scientifically-defensible data for tribal fish consumption has been available since 1994 for the Columbia River Tribes[1], and since 1996 for Puget Sound Tribes.[2] The state has acknowledged the deficiencies in state standards since at least 1999, when the WA Department of Ecology published a draft analysis and selection of fish consumption rates for risk assessments and risk-based standards.[3]

    b. Triennial Reviews: Tribes have requested that the state remedy the deficiency in state standards since at least 2002, when the issue was raised during the Triennial Review of the state's water quality standards. The 2002 Triennial Review was focused on aquatic life standards, but the issue was explicitly raised again during the 2010 Triennial Review. The Department of Ecology's response to the 2010 Triennial Review included a commitment to address the inadequate fish consumption rate in state water quality standards.

    c. Deferring the issue: Since 2010, the Department of Ecology has repeatedly switched focus on the FCR issue back and forth between the toxic cleanup and

---

[1] CRITFC (Columbia River Inter-Tribal Fish Commission), 1994. A fish consumption survey of the Umatilla, Nez Perce, Yakama and Warm Springs Tribes of the Columbia River Basin. Columbia River Inter-Tribal Fish Commission Report reference #94-03, Portland, Oregon.

[2] Toy, K.A., Polissar, N.L., Liao, S., and Mittelstaedt, G.D. 1996. A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region. Tulalip Tribes, Department of Environment.

[3] Washington State Department of Ecology, 1999. Draft analysis and selection of fish consumption rates for risk assessments and risk-based standards. Ecology Pub. 99-200. L. Kiell and L. Kissinger and an interagency Risk Assessment Forum.

water quality divisions, thereby thwarting the timely adoption of more protective HHC. Ecology assigned the analysis of the FCR to the Toxics Cleanup Program in 2010, with the express objective of establishing a FCR that could be used in both sediment management standards and water quality standards. After at least 18 months down that path, the state abandoned the effort in the Toxics Cleanup Program in July 2012, and initiated a new process by the Water Quality Program. The Governor initiated another discussion process for advisory purposes in 2013, known as the Governor's Informal Advisory Group, which concluded in 2014.

2. The establishment of human health criteria in state water quality standards has been inappropriately influenced by intervention from industry.

a. Industry has advocated for lowering one standard in exchange for another. In the 2010 Triennial Review, representatives commenting for industrial dischargers remarked that the state ought to lower the protective level for the cancer risk rate if they were to raise the fish consumption rate.[4] At the time, the state responded that they had no plan or purpose to change the cancer risk rate. In these and other remarks posted on the Ecology blog, "What People are Saying," industrial representatives characterized the risk rate as a policy decision—an argument that the state appears to have accepted, as the state characterizes many decisions on human health criteria as "risk management" decisions.[5] As other sections of these comments will describe, it is the health of tribal people (and other groups that are major consumers of seafood) that are placed at disproportionate risk while the state attempts to accommodate industry's objective to avoid regulatory improvement in reducing pollutant discharge.

b. Several investigative reports conducted in 2012 and 2013 concluded that particular influence was exerted by the Boeing Corporation on the Governor and her staff in 2012, immediately preceding the Department of Ecology's decision to defer establishment of a revised fish consumption rate and remove numerical

[4] Washington Department of Ecology; August, 2011. Washington Water Quality Standards 2010 Triennial Review – Comments and Response. http://www.ecy.wa.gov/programs/wq/swqs/TrienRevComm.html

[5] WA Dept. of Ecology; January 2015. "Overview of Key Decisions in Rule Amendment" Ecology Publication no. 14-10-058.

recommendations from their Technical Support Document.[6,7] In May and June of 2013, private corporations, in particular the Boeing Corporation, were reportedly attempting to influence state budget discussions in the Washington State Legislature.[8] This prompted the Environmental Protection Agency regional administrator to write the Director of the Department of Ecology to warn that, "*should Washington's process be unnecessarily delayed, the EPA has the authority to amend the NTR human health criteria for Washington*."[9]

3. **Since the commencement of rulemaking for human health criteria in the Water Quality Program in 2012, Ecology has breached their own written commitments for a completion date for a draft rule at least three consecutive times as follows.**

   a. In July 2012, during the pivot and delay from establishing a fish consumption rate in sediment management standards to water quality standards, Ecology Director Ted Sturdevant included a written timeline that listed a target date for completion of a draft rule as the Fall of 2013, with completion of a final rule by the Spring of 2014.[10]

   b. Ecology Director Maia Bellon inherited the issue upon taking office in 2013, and wrote to Michael Grayum, the Executive Director of the Northwest Indian Fisheries Commission in February 2014, indicating that *"Ecology plans to have a draft rule available by the end of March 2014, and a final rule submitted to EPA by December 31, 2014."*[11]

---

[6] McClure, Robert. March 30, 2013. Business interests trump health concerns in fish consumption fight. Investigate West.

[7] McClure, Robert and Olivia Henry. April 23, 2013. How Boeing, allies torpedoed state's rules on toxic fish.

[8] Seattle Times. June 26, 2013. Deal or no deal? Conflicting claims fly as state budget bickering persists.

[9] U.S. Environmental Protection Agency; June 21, 2013. . Letter from Region 10 Administrator Dennis McLerran to WA Department of Ecology Director Maia Bellon.

[10] WA Department of Ecology; July 16, 2012. Open letter from Director Ted Sturdevant.

[11] Washington Department of Ecology. February 14, 2014. Letter from Ecology Director Maia Bellon to NWIFC Director Michael Grayum.

c. By April, 2014 it was clear that the March deadline had been breached, and the EPA again wrote to the Department of Ecology about the delay.[12] EPA committed to the initiation of Federal promulgation in 2015 if the state did not meet their own deadline to complete a rule by the end of 2014. In July 2014, Governor Inslee issued a press release announcing that he was directing the Department of Ecology to complete a draft rule by September 30, 2014. The Governor did not specify a date for a final rule, indicating that he would review the rule following potential action by the WA State Legislature in 2015.

4. The net result has been that decisions for the establishment of human health criteria have been based on political process, rather than public health and science.

The Governor selected representatives to a "Governor's Informal Advisory Group" (GIAG) in 2013, consisting of invited representatives from business, local government, non-governmental organizations, and four tribal leaders/ representatives. Tribal representatives expressed their concern about delay in rule-making at the onset, and the need to respect government-to-government between the state and tribes in decision making.[13] As described in Section I. Undue Delay, the GIAG met several times in 2013 to early 2014 to hear a series of presentations and to discuss issues of concern, but did not reach a set of consensus recommendations.

In July, 2014 Washington Governor Inslee announced his decisions with respect to the human health criteria and development of a rule for water quality standards.[14] He indicated that he would direct the Department of Ecology to set a fish consumption rate at 175 grams per day, and that he would reduce the protective level of the cancer risk rate by ten-fold to one-per-100,000 (10^{-5}). Recognizing that these changes would make some chemical criteria less stringent, the Governor included a "no-backslide" provision that no chemical could get worse than what is allowed by current standards. Arsenic was an exception.

---

[12] U.S. Environmental Protection Agency; April 8, 2014. Letter from Region 10 Administrator Dennis McLerran to WA Department of Ecology Director Maia Bellon.

[13] Letter from 4 Tribes to Governor Inslee; August 14, 2013.

[14] Office of Governor Jay Inslee; July 9, 2014. Press release: "Inslee takes new approach to creating meaningful, effective state clean water standards."

At the same time, the Governor announced that he would link rule-making to a toxics reduction policy initiative in the WA Legislature, essentially advancing more lenient provisions in the rule to be mitigated by a potential political process for a toxics reduction strategy. The Governor's announcement did not specify how the legislative effort is related to rule-making, or how the rule might be revised based on the outcome of the legislative process. This implies that the state may intend to re-issue the draft rule yet again depending on the political outcome of the toxics reduction proposal in the legislature.

5. In summary, the state has failed in its responsibility to protect water quality for fish consumption and other beneficial uses mandated by the Federal Clean Water Act.

Throughout the last two decades, tribes have clearly and consistently communicated the need for a change in the state's human health criteria, and have provided scientifically valid data to support this change. In response, the state of Washington has delayed their own recommendations, stalled in establishing human health criteria in water quality standards, allowed decision making on public health to be delayed or swayed by influence from permittees or industry advocates, and has made decisions based on political process rather than public health.

The following timelines summarize the many reports, correspondence, and delays that contribute to the tribe's assertion that the state has failed in its responsibility to protect water quality for human health.

B. Timeline Summary

Timeline Summary	
1991-1992	Development of NTR for Washington
1994-2000	Tribal studies of fish consumption are completed and submitted to the state. In 1999, the state convenes an interagency Risk Assessment Forum, which recommends that fish consumption rates be changed in state standards.
2002-2003	National Environmental Justice Advisory Committee report identifies the need to remedy fish consumption rates in state standards, consistent with treaty rights and environmental justice concerns. The Triennial Review of WA state surface water standards focuses on aquatic life criteria, but tribes comment on the need to establish human health criteria.
2007-2010	Tribes meet with state and EPA to discuss development of revised FCR in HHC. Formal workshops are held, and a leadership group is established by Tribes, EPA, and Ecology to track progress. Triennial Review (2010) identifies the need to establish HHC.
2011-2012	Department of Ecology pauses efforts to adopt an FCR in water quality standards and shifts effort to establish fish consumption rate in toxic cleanup standards. Ten tribes and two tribal consortiums comment on Technical Support Document related to Fish Consumption Rates. Ecology announces in July, 2012 that they will defer the FCR back to the water quality standards process instead. A target date of Fall 2013 is established for a draft rule for human health criteria. Tribes correspond with the state and EPA to express their frustration with the pivot. Investigate West later documents industry influence on the decision to delay.
2013	Incoming Governor Jay Inslee establishes Governor's Informal Advisory Group. Ecology Director Maia Bellon commits to completion of draft rule by the Fall/Winter of 2013/2014. Industry intervenes in state budget process to influence the development of an FCR.
2014	Multiple delays in issuing a draft rule by the Department of Ecology. In April, EPA indicates that they will begin federal promulgation of revised HHC if the state does not complete rule by the end of 2014. In July, Governor Inslee announces direction for rule making, linked to a toxics reduction strategy to be introduced to the WA State Legislature in 2015.
2015	In January, Ecology issues draft rule for HHC and compliance tools, and legislation for increased use of chemical action plans for toxic reduction is introduced.

C. Detailed Chronology: Development Of The Human Health Criteria In Washington State Water Quality Standards

The following detailed chronology documents the history of the establishment of human health criteria in Washington State water quality standards, and the tribes' repeated and consistent attempts to work with the state to remedy the inadequacy of the fish consumption rate and other criteria. All materials cited and/or attached are incorporated by reference.

1992 National Toxics Rule - EPA adopts national criteria for WA (including FCR of 6.5 and cancer risk rate of 10^{-6}).

The State of Washington specifically urged the EPA to adopt a cancer risk level of 10^{-6}, based on considerations of multiple contaminants. On December 18, 1991, in its official comments on the proposed rule, the Department of Ecology urged EPA to promulgate a criterion for carcinogens at 10^{-6}.

"The State of Washington supports adoption of a risk level of one in one million for carcinogens. If EPA decides to promulgate a risk level below one in one million, the rule should specifically address the issue of multiple contaminants so as to better control overall site risks."[15]

The fish consumption rate for Washington was adopted at the national default value at the time in the absence of other regional or state-specific data.

1994 CRITFC study documents FCR at 176 grams per day (95th percentile). Higher exposure is documented for tribal members who pursue a traditional diet.[16]

1996 Studies of the Tulalip and Squaxin Island Tribes of the Puget Sound region document consumption rates of 186 to 247 gpd (90th-95th percentile).[17]

---

[15] NTR Final Rule Notice, 57 Fed.Reg. 60868 (Dec. 22, 1992).

[16] CRITFC (Columbia River Inter-Tribal Fish Commission), 1994. A fish consumption survey of the Umatilla, Nez Perce, Yakama and Warm Springs Tribes of the Columbia River Basin. Columbia River Inter-Tribal Fish Commission Report reference #94-03, Portland, Oregon. –Accessed from: http://www.critfc.org/reports/a-fish-consumption-survey-of-the-umatilla-nez-perce-yakama-and-warm-springs-tribes-of-the-columbia-river-basin/#sthash.j3j2pYTr.dpuf

Abstract: http://www.critfc.org/reports/a-fish-consumption-survey-of-the-umatilla-nez-perce-yakama-and-warm-springs-tribes-of-the-columbia-river-basin/

[17] Toy, K.A., Polissar, N.L., Liao, S., and Mittelstaedt, G.D. 1996. A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region. Tulalip Tribes, Department of Environment.

1999	WA Dept of Ecology issues draft report analyzing FCRs and acknowledging the need to change state standards due to elevated risk to tribal and Asian populations.[18] The Risk Assessment Forum report recommended a default rate for reasonable maximum exposure of 175 grams per day for freshwater areas, to be used only with exposure assumptions of a bodyweight of 70 kg and 30 year duration of exposure. Further, the RAF recommended that, "the Water Quality Program consider the findings of this report when updating water quality standards."
2000	Suquamish dietary study documents fish consumption rate of 489 gpd (90th-consumers) and 797 gpd (95th-consumers.)[19]
2002	National Environmental Justice Advisory Council (A Federal Advisory Committee to the EPA) report urges states to improve outdated and underprotective FCRs for tribal populations due to elevated risk.[20]
2002-2003	2002 Triennial Review of Washington State surface water quality standards. In a letter to the Dept. of Ecology Director with comments on the triennial review, the Confederated Tribes of the Umatilla Indian Reservation states that the standards should address human health as well as aquatic life. "*The CTUIR recommends that the DOE develop standards to protect the water supply for tribal fisheries such that both Tribal members, with higher consumption rates, and non-Indian consumers are fully protected. These regulations should be developed in consultation with tribal governments and with EPA."*[21]
2009-2011	Ecology Directors Jay Manning and Ted Sturdevant commit to the adoption of a more protective FCR in both the Water Quality Standards and the Sediment Management Standards. The issue is added to the 2010-2011 Work Plan[22] for

[18] Washington State Department of Ecology, 1999. Draft analysis and selection of fish consumption rates for risk assessments and risk-based standards. Ecology Pub. 99-200. L. Kiell and L. Kissinger and an interagency Risk Assessment Forum. https://fortress.wa.gov/ecy/publications/publications/99200.pdf

[19] Suquamish Tribe, 2000. Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation, Puget Sound Region. August 2000.

[20] National Environmental Justice Advisory Council, 1992. Fish Consumption and Environmental Justice: A report developed from the meeting of the National Environmental Justice Advisory Council meeting of December 3-6, 2001.

[21] Confederated Tribes of the Umatilla Indian Reservation; March 14, 2003. Letter from CTUIR Natural Resources Director Michael Farrow to WADOE Director Tom Fitzsimmons.

[22] Ecology/Tribal Environmental Council, 2010 / 11 Annual Workplan Development

the Ecology/Tribal Environmental Council (a government-to-government communication forum between Washington State and tribes). Due to existing technical work on the SMS by the Toxic Cleanup Program, Ecology asks the tribes to wait while the SMS is completed first. With the understanding that the SMS process will analyze and document the scientific information on FCR, the tribes agree to a 3-step pathway for adopting an accurate and protective FCR:

- Completion of revised Sediment Management Standards
- Completion of revised Water Quality Standards
- Implementation Rules for Water Quality Standards with revised compliance schedules and variances. These are intended to allow flexibility for industrial and municipal permittees.

2009-2010 The Environmental Protection Agency, University of Washington, and Tribal representatives conduct two intergovernmental workshops on fish consumption and treaty rights. [23] Workshops included presentations from the WA Department of Ecology. [24] The Ecology presentation described the need to amend the FCR.

2010 Triennial Review of State Water Quality standards identifies the need for the FCR to be increased. [25] Comments to that effect were submitted by NWIFC,[26] the Kalispel, Quinault, and the Swinomish Tribes, and the US EPA. In the response to the comments, the state indicates that they will work toward the establishment of an FCR. Note the summary table, pages 14-17 pertaining to TOXICS: Human Health Criteria. Tribal comments recommended various FCR values based on tribal data, ranging from at least 175 gpd (Confederated Tribes of the Umatilla Reservation) to 766.7 gpd (Suquamish).

On p. 17 of the response document table, Stoel Rives LLP comment indicated that, *"If Ecology chooses to revise the criteria to reflect a higher fish consumption rate such as Oregon is considering, then Ecology should also revise the risk level from one in a million (10^{-6}) additional lifetime cancer rate to one in 100,000 (10^{-5})."*
Ecology responded: *"At present Ecology has no plans to change the risk level …."*

[23] University of Washington Superfund Research Program. August 12-13, 2009. Agenda for "Tribal Rights and Fish Consumption: Issues and Opportunities in the Pacific Northwest." Accessed from: http://depts.washington.edu/sfund/forthepublic/tribal_rights.html

[24] Ecology, 2010. "Ecology's Perspective on Fish Consumption Rate Revisions and Rule Development." Materials from the Workshop on Fish Consumption Rates, Water Quality Standards and Tribal Treaty Rights, June 16, 2010.
[25] Washington Department of Ecology; August, 2011. Washington Water Quality Standards 2010 Triennial Review – Comments and Response. http://www.ecy.wa.gov/programs/wq/swqs/TrienRevComm.html

[26] Northwest Indian Fisheries Commission; December 17, 2010. Letter from NWIFC Executive Director Michael Grayum to WA Department of Ecology Director Ted Sturdevant.

Aug 2011 Ecology contracts with NWIFC to work toward the development of a single FCR to be used in both sediment management standards and water quality standards. From Attachment A: Statement of Work:

"The common need for a revised and appropriate FCR for use in calculating human health-based criteria and clean-up requirements prompted Ecology to ask the NWIFC to coordinate work among tribes in Washington to develop agreement on one fish consumption rate that the tribes would find acceptable in calculating water quality criteria and clean-up levels.

Tribes have been aware of and active on FCR issues for many years and have been requesting water quality criteria review and revision for over a decade. A number of the tribes in Washington have conducted fish consumption surveys to more accurately determine and document the amount (rate) of fish that their people consume, and have revised their Reservation water quality standards to reflect these realistic consumption rates. The issue is one of both public health and environmental protection. It is also important to tribes from an Environmental Justice perspective that Washington's water quality standards do not exclude tribal people and tribal culture from protection."[27]

NWIFC submitted a final report to the Department of Ecology at the end of the contract period (June 30, 2012) describing outreach efforts to tribes and stakeholders, how assumptions changed during the course of the contract, and a summary of comments on the first Technical Support Document process.[28]

Sept 2011 Ecology releases the FCR Technical Support Document recommending a default range of 157-267 gpd.[29] As shown by the original document cover[30] the document was not originally labeled as Version 1. The documents posted on the Ecology website were later re-labeled when Ecology withdrew the document in 2012, removed numerical recommendations, made other changes, and reissued the document as Version 2.0. Ecology's News Release indicated that the information was intended for revisions in both toxics cleanup and water quality

[27] Washington Department of Ecology and the Northwest Indian Fisheries Commission. August 15, 2011. Interagency Agreement No. C1200088 for the Development of a Fish Consumption Rate.

[28] Northwest Indian Fisheries Commission. June 30, 2012. Fish consumption rates: tribal outreach, stakeholder exchange and coordination. Final report to the Washington Department of Ecology, Contract No. C1200088.

[29] Washington Department of Ecology, Toxics Cleanup Program. September 2011. Fish Consumption Rates Technical Support Document. Publication no. 11-09-050. (This version was downloaded from Ecology's website after it was re-labeled as Version 1.)

[30] Scanned copy of original report cover for above referenced document.

standards, and that standard-setting was a logical follow-up to toxics reduction efforts already in progress.[31]

Oct 2011 EPA approves Oregon FCR in water quality standards at 175 g/day, following a multi-year process with tribes and stakeholders, and including review of tribal fish consumption data.[32]

Dec 2011 Ecology holds workshops on FCR and Implementation Rules for WQ Standards with revised timelines.[33]

Jan 2012 Comments on Technical Support Document Verson1.0 related to tribal concerns are submitted by Spokane, Yakama, Kalispel, Colville, Jamestown S'Klallam, Suquamish, Squaxin Island, Swinomish, Lummi, Lower Elwha Klallam, Northwest Indian Fisheries Commission, Columbia River Intertribal Fish Commission, and the Center for Indian Law and Policy at Seattle University. (attached as a folder in supporting documents, but not cited individually)

Additional letters on the fish consumption issue are submitted from several tribes and tribal organizations to the Governor and Legislators during early 2012.[34, 35, 36] In particular, NWIFC Chairman Billy Frank, Jr. wrote to express tribal concerns about tribes and other groups of high fish consumers being treated differently than the general population.[37]

---

[31] Washington Department of Ecology News Release; October 11, 2011. "Ecology starts dialogue about toxic chemicals in fish to better protect public health."

[32] US Environmental Protection Agency; October 17, 2011. Letter from Region 10 Office of Water and Watersheds Director Michael Bussell to Oregon Department of Environmental Quality-Water Quality Division Administrator Neil Mullane. http://www.epa.gov/region10/pdf/water/or-tsd-hhwqs-transmittal-ltr-2011.pdf

[33] Washington Department of Ecology MTCA-SMS-Rule Update Archives for December 2011 Workshop materials and references. http://listserv.wa.gov/cgi-bin/wa?A1=ind1112&L=MTCA-SMS-RULE-UPDATE

[34] Colville Confederated Tribes; February 29, 2012. Letter from Tribal Chairman Michael Finley to Washington State Senator Lisa Brown re: Rulemaking to improve environmental standards for fish consumption.

[35] Suquamish Tribe; February 29, 2012. Letter from Tribal Chairman Leonard Forsman to Washington State Representatives Rolfes, Appleton, and Hansen re: Fish consumption rates and environmental standards.

[36] Tulalip Tribes; February 28, 2012. Letter from Chairman Melvin Sheldon to Washington State Senator Nick Harper re: Fish consumption rates and rule-making by the Department of Ecology.

[37] Northwest Indian Fisheries Commission; February 29, 2012. Letter from Chairman Billy Frank, Jr. to Governor Chris Gregoire re: fish consumption rates and rule-making by the Department of Ecology.

Beginning in February, 2012 the Affiliated Tribes of Northwest Indians adopted a series of resolutions to the state of Washington and the U.S. Environmental Protection Agency urging improved water quality standards.[38],[39],[40]

May 2012 Ecology holds workshops on the Sediment Mgt Standards, indicating they plan to adopt a default FCR using tribal fish consumption levels.
See Washington Department of Ecology MTCA-SMS-Rule Update Archives for May 2012 Workshop materials and references.[41]

June 2012 NWIFC holds a tribal leaders summit followed by Centennial Accord meeting. Ecology indicates they intend to adopt FCR in Sediment Mgt Standards in 2012

July 2012 Ecology announces intent to change the establishment of a FCR in state standards from the Toxics Cleanup Program to the Water Quality Program.[42] Director Sturdevant's letter indicates that Ecology will file a CR-101 to begin the process of establishing human health criteria in surface water quality standards, including a fish consumption rate, by August 2012. A timeline attached to the letter specifies a target for filing the CR-102 by the Fall of 2013, with a rule adopted Spring, 2014. CR-101 was filed September 13, 2012.

August 2012 Director Sturdevant sets up three discussion forums and invites tribes to participate at the Delegates Table of the Policy Forum.[43]

July-Dec 2012 Tribal correspondence to EPA and Ecology documents frustration with the delay, and many tribes choose not to participate in the new state process. (See attached folder with Tribal, EPA, and Ecology correspondence July-December 2012, not cited individually)

Puget Sound Partnership adopts resolution 2012-04 requesting that the Department of Ecology complete the update of fish consumption rates and adopt it into water quality standards by the end of 2013.[44]

---

[38] Affiliated Tribes of Northwest Indians. February, 2012. Resolution 12-19.

[39] Affiliated Tribes of Northwest Indians. September, 2012. Resolution 12-54.

[40] Columbia River Intertribal Fish Commission. October 31, 2014. Letter from CRITFC Chairman Carlos Smith to EPA Administrator Gina McCarthy with attached ATNI Resolution 14-56.

[41] Washington Department of Ecology MTCA-SMS-Rule Update Archives. http://listserv.wa.gov/cgi-bin/wa?A1=ind1112&L=MTCA-SMS-RULE-UPDATE. Accessed March 21, 2015

[42] WA Department of Ecology; July 16, 2012. Open letter from Director Ted Sturdevant.

[43] WA Department of Ecology; August 15, 2012. Letter from Director Sturdevant to tribal chairs.

[44] Puget Sound Partnership; August 9, 2012. Resolution 2012-04 Fish Consumption Rates.

EPA Regional Administrator McLerran writes to Ecology to urge progress and assures tribes that they will oversee timely completion of human health criteria by the state. [45],[46],[47] Director Sturdevant indicates that a revised version of the FCR Tech Support Document will be done by November 2012 for use in developing WQS. (second draft came out August 2012, final in January 2013)[48]

Also during this period, the Lummi Nation and Colville Confederated Tribes publish fish consumption studies (see FCR section for citations)

January 2013 Ecology issues revised final Technical Support Document (V 2.0) without numerical recommendations for the fish consumption rate.

2013 Journalists document industry intervention into the fish consumption rate decision-making process and state budget.[49],[50],[51],[52],[53],[54],[55],[56] Additional description of the issue is published in the American Law Journal.[57]

2013-2014 *New state administration with Governor Inslee and Ecology Director Bellon.*

---

[45] August 2012: Letter NWIFC to McLerran—complaint about the delay

[46] Sept 6, 2012 McLerran letter to Sturdevant urging progress on FCR

[47] Sept 14, 2012 McLerran letter to NWIFC stating that they will oversee timely progress by the state

[48] Sept 25 2012: Letter from Sturdevant to McLerran with timelines

[49] McClure, Robert. March 30, 2013. Business interests trump health concerns in fish consumption fight. Investigate West.

[50] McClure, Robert and Olivia Henry. April 23, 2013. How Boeing, allies torpedoed state's rules on toxic fish.

[51] Environmental Health Perspectives 121:11-12. November-December 2013. Meeting the needs of the people: Fish Consumption Rates in the Pacific Northwest.

[52] Seattle Times. June 26, 2013. Deal or no deal? Conflicting claims fly as state budget bickering persists.

[53] Everett Herald. June 25, 2013. Boeing's opposition to fish study a sticking point in budget.

[54] The Inlander. April 23,2013. Deadly catch.

[55] Seattle Times. October 1, 2013. Boeing's economic impact on state estimated at $70B. and October 2, 2013. Inslee wants aerospace tax breaks extended if Boeing builds 777X here. .

[56] Borderlands Research and Education, 2014. No justice on the plate.

[57] O'Neill, C. 2013. Fishable waters. American Law Journal 1:2 (Spring 2013)

Ecology postponement under Inslee administration:

During a meeting with Tribal Leaders on April 25, 2013 at Nisqually, Director Bellon verbally commits to the schedule established by her predecessor, Ted Sturdevant, to complete a draft rule in the "fall/winter of 2013-2014."

Ecology presents a public information meeting on November 3, 2013 with draft rule options.[58]

The schedule established by Sturdevant in 2013 is postponed by Ecology Director Bellon in early 2014:

> *"Ecology plans to have a draft rule available by the end of March 2014, and a final rule submitted to EPA by December 31, 2014."* [59]

EPA writes to Ecology on April 8, 2014 and indicates that the EPA would begin federal rule promulgation in 2015 if a final rule was not completed by the end of 2014:

> *"If Ecology does not follow through with its stated timeframe for final rule adoption, the EPA intends to take the steps necessary to allow for a proposal of federally revised human health criteria for Washington, via amendment of the National Toxics Rule human health criteria for Washington, by May 31, 2015.*[60]

On April 18, 2014, Tribal Leaders met with officials from WADOE, Governor's Office, and EPA. Ecology stated that they still planned on a final rule by the end of 2014, and expected a draft rule around June 30, 2014.

Governor Inslee Involvement and the Governor's Informal Advisory Group

Governor Inslee establishes the Governor's Informal Advisory Group in August 2013 and invites four tribal representatives, who express concerns about participation.[61] A subgroup to the GIAG called the Creative Solutions Group is

[58] Washington Department of Ecology; November 6, 2013. Water Quality Standards rulemaking – general information meeting. Morning and afternoon presentations.

[59] Washington Department of Ecology; February 14, 2014. Letter from Ecology Director Maia Bellon to NWIFC Executive Director Michael Grayum.

[60] U.S. Environmental Protection Agency; April 8, 2014. Letter from Region 10 Administrator Dennis McLerran to WA Department of Ecology Director Maia Bellon.

[61] Letter from 4 Tribes to Governor Inslee; August 14, 2013

formed and issues a report, but tribes state that they are not in agreement with the recommendations.[62] Ecology presents a draft rule overview to the GIAG on September 23, 2013.[63] Business and municipalities representatives including the City of Bellingham and Weyerhaeuser present economic impact information to the GIAG in December, 2013. Tribes present their concerns to the GIAG on February 7, 2014.[64] Following the conclusion of the GIAG process in March 2014, the leaders of the Swinomish, Jamestown S'Klallam and Suquamish Tribe (who were invited to the GIAG) present a letter to the Governor expressing their continuing concerns, and urging the Governor to focus on implementation while retaining protective standards. Additional letters are submitted by the Puyallup Tribe, Port Gamble S'Klallam Tribe, Tulalip Tribes, Lummi Nation, Kalispel Tribe, Stillaguamish Tribe, Northwest Indian Fisheries Commission, and Columbia River Intertribal Fish Commission in March and April of 2014. (see attached file of official correspondence 2014)

On July 9, 2014, Governor Jay Inslee announced a Toxics Reduction Initiative package, consisting of a draft rule for water quality standards linked to legislation for a toxics reduction strategy to be introduced to the 2015 WA State Legislature:

> *"Inslee is directing the Department of Ecology to issue a preliminary draft rule no later than Sept. 30. He will submit legislation to the Legislature in 2015 and will make a decision on whether to adopt the final rule only after seeing the outcome of the session."*[65]

Following Inslee's announcement, letters are submitted from NWIFC, the Lummi Nation, and the Jamestown S'Klallam Tribe to the Governor; and from the Squaxin Island Tribe, Yakama Nation, Lower Elwha Klallam Tribe, NWIFC and CRITFC to EPA requesting EPA take action on the timing and substance of the state rule. (see attached file of official correspondence 2014)

---

[62] Yakama Nation; January 28, 2014. Letter from Phil Rigdon, Deputy Director of the Yakama Nation Department of Natural Resources to JT Austin, Policy Advisor-Office of the Governor re: Creative Solutions Summary Report to the Governor's Informal Advisory Group.

[63] Susewind, K., September 23, 2013. Current rule updates for the water quality standards.

[64] Peters, J. and F. Wilshusen; February 3, 2014. Fish consumption rates and Washington water quality standards: tribal perspectives – traditional foods, treaty rights, and human health. (Presentation delayed to February 7, 2014)

[65] Office of Governor Jay Inslee; July 9, 2014. Press release: "Inslee takes new approach to creating meaningful, effective state clean water standards."

The National Congress of American Indians adopts resolution ATL-14-31 in October, 2014 requesting EPA to intervene in the use of a lower cancer risk level in water quality standards.[66]

Dec. 2014 EPA notifies the WA Department of Ecology of intent to begin federal rule promulgation.[67]

2015 The WA Department of Ecology filed a CR102 for a draft rule on January 12, 2015.

The Governor's toxic reduction bill emphasizing the use of chemical action plans was introduced to the WA State Legislature on January 21, 2015 as SB 5406.

[66] Columbia River Intertribal Fish Commission; December 23, 2014. Letter from CRITFC Chairman Carlos Smith. to EPA Administrator Gina McCarthy with attached NCAI Resolution.

[67] U.S. Environmental Protection Agency; December 18, 2014. Letter from Region 10 Administrator Dennis McLerran to Washington Department of Ecology Director Maia Bellon.

II. Fish Consumption Rates

Narrative/Overview

The fish consumption rate of 175 g/day is lower than documented contemporary or heritage rates in regional tribal communities. In conjunction with other human health criteria proposed by the Washington Department of Ecology, which included lower protection values, the proposed fish consumption rate of 175 g/day is a compromised value and does not protect tribal communities and other groups of people who consume high amounts of fish.

The state of Washington has selected a fish consumption rate of 175 g/day as a proposed value in the draft rule for the human health criteria. The state currently utilizes a rate of 6.5 g/day in their water quality standards – a rate that represents the consumption of only one 7 oz. meal of fish per month. The existing rate is grossly under-representative of fish consumption in Washington, especially for tribal communities, thereby exposing tribal people to harm.

The proposed rate of 175 g/day is also under-representative of tribal fish consumption across all temporal scales: from heritage to contemporary rates (see definitions below). In previous comments on state publications and public forums, tribes indicated that a FCR of at least 175 g/day could be utilized as a compromised step forward in reducing the public health risk of pollution, provided it was not paired with reductions in the protective levels of other human health criteria. The state has chosen to invalidate the potential benefit of a higher fish consumption rate by lowering other protective standards. The Department of Ecology's prior technical analyses related to fish consumption rates have documented, and recommended, rates that meet or exceed the rate of 175 g/day.

Tribes concur with the state's decision to include all fish, including salmon, in the fish consumption rate since data demonstrate elevated levels of toxic contaminants in fish that originate, reside in, or transit, state freshwater and state-influenced marine water bodies. Numerous studies by NOAA/National Marine Fisheries Service, Washington Department of Fish and Wildlife, Environment Canada, and the Puget Sound Ambient Monitoring Program have documented uptake of toxic chemicals in fish, shellfish, and marine mammal species in Puget Sound, the Columbia River, and other nearshore/marine areas of Washington. Tribes are highly reliant of local/regional fisheries resources for both personal consumption and commercial harvest.

Some definitions of terms:

As used herein, the following terms are applied:

> **Heritage Rates** "refer to the rates of fish intake consonant with traditional tribal practices, prior to contact with European settlers"[68] and assume rates that were "uncontaminated and available" and not subject to suppression.[69]
>
> **Contemporary** rates of tribal fish consumption, as used in this document, refers to fish consumption that has occurred in recent history, i.e. since the early 1990s when tribes began conducting dietary surveys to document modern consumption.
>
> **Traditional** refers to harvest and consumption practices, similar to ancestral use of fisheries resources, and is not a rate.
>
> **Subsistence** is used in two ways in this document: 1) as used by EPA and the Department of Ecology in reference to water quality criteria, and 2) as used in treaty tribal fisheries management. The intent must be inferred from context.

For further discussion of terms, please see the appendix: "Fish Consumption Rates: Notes on Descriptive Terms."

A. The contamination of fisheries resources harms tribal communities.

Fish consumption is a cultural, nutritional, and economic necessity, as well as a treaty right for the tribes of the Pacific Northwest. Numerous studies document the level of fish consumption among regional tribes and the potential exposure of tribal people to toxic chemicals through the fish consumption pathway. The proposed standards will subject Washington tribes to harm by contaminating or impairing the fisheries resources upon which the tribes rely, in contravention of the rights of tribal people to harvest fish that they may safely consume.

1. **Tribal lifeways of the Pacific Northwest are culturally synonymous with fish consumption. When fisheries are closed due to toxic contamination[70], tribes lose access to a resource that is their lifeway and livelihood.** Tribes have documented the preference of many tribal members to consume contaminated fish and shellfish, rather than lose the opportunity to consume their traditional food. The toxic

[68] Donatuto, J., B. Harper and C. O'Neill; February 14, 2014. "Heritage, Subsistence, and Aspirational Fish Consumption Rates: Comments on Usage. Submitted to the Idaho Department of Environmental Quality.

[69] Catherine O'Neill, Professor of Law, Seattle University School of Law, Comments to IDEQ, *Risk, Human Health, and Water Quality Standards* (Jan. 20, 2015).

[70] WA Department of Health. 2015. Fish Consumption Advisories. http://www.doh.wa.gov/CommunityandEnvironment/Food/Fish/Advisories

contamination of fisheries puts tribal treaty rights at risk. Numerous articles describe the reliance of tribes on fishing and fish consumption for tribal lifeways, and the potential harm from exposure to toxic chemicals via the fish consumption pathway. [71] [72] [73] [74] [75] The National Environmental Justice Advisory Committee, a Federal Advisory Committee, reported on environmental justice issues associated with the loss of tribal fishing opportunity in 2002.[76]

2. **Tribal communities and people are highly reliant on the nutritional benefits of abundant and healthful fisheries resources.** The University of Washington School of Public Health has analyzed many of the relative health benefits and risks of eating fish.[77] Although the nutritional benefits are high, health risks are more pronounced for children, infants, developing embryos, and women of child bearing age, particularly in high fish-consuming communities.[78] [79] [80] In at least one tribal dietary study in Puget Sound, tribal children have been shown to consume fish at over three

---

[71] Harris, S.G. and B.L. Harper, 1997. A Native American Exposure Scenario. Risk Analysis 17:6, 789-795. December, 1997.

[72] Donatuto, J. and B.L. Harper, 2008. Issues in Evaluating Fish Consumption Rates in Native American Tribes. Risk Analysis 28:6, 1497-1506. December, 2008.

[73] O'Neill, C.A. 2000. Variable Justice: Environmental Standards, Contaminated Fish, and "Acceptable" Risk to Native Peoples, Stan. Envtl, L.J. 3,37,46-51 (2000)

[74] O'Neill, C.A. 2007. Protecting the Tribal Harvest: the Right to Catch and Consume Fish. J Environmental Law Litigation 22:131-151 (2007)

[75] O'Neill, C.A. 2013. Fishable Waters. American Indian Law Journal Vol 1, Issue 2

[76] National Environmental Justice Advisory Council, 2002. Fish Consumption and Environmental Justice: A Report Developed from the National Environmental Justice Advisory Committee Meeting of December 3-6, 2001.

[77] Faustman, E.M. 2011. What's the Public Health Issue and Why Is It Important? Presentation at the Washington Department of Ecology Technical Workshop on Fish Consumption in Washingon, December 12, 2011. http://www.ecy.wa.gov/toxics/docs/20111212_fishworkshop_faustman.pdf

[78] Hoover, 2013. Cultural and health implications of fish consumption advisories in a Native American community. Ecological Processes 2013, 2:4

[79] Tsuchiya, Hardy, Burbacher, Faustman and Marien, 2008. Fish intake guidelines: incorporating n-3 fatty acid intake and contaminant exposure in the Korean and Japanese communities. Am Jrnl Clinical Nutrition 2008;87: 1867-75. American Society for Nutrition

[80] US Environmental Protection Agency, 2008. Child-Specific Exposure Factors Handbook; Chapter 10, Intake of Fish and Shellfish. http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=199243

times the rate of adults, relative to body weight.[81] Many of these studies were described in the Department of Ecology's technical workshop on fish consumption, held at the University of WA campus in December, 2011. [82]

3. **The loss of consumable fisheries resources due to toxic contamination affects tribes economically**. The seafood industry in Washington is a major economic sector in the state of Washington.[83] [84] Toxic contamination of fisheries resources generates economic losses to tribes in several ways: First, tribes may be precluded from harvesting fish for their personal use, necessitating a cost to purchase fish or other food as substitution for what they could have caught. Second, tribes may not be able to sell fish that they have lawfully harvested in accord with treaty rights and fishing management plans because of closed areas, contaminated product, or even the perceived potential for contaminated product by consumers. Fishing closures and the inability to market product precludes tribes from their livelihood. Third, are the secondary economic impacts to tribal fishers from being forced to travel to alternative sites in order to exercise fishing rights. Fourth, are the potential costs of health impacts from prolonged exposure to toxic chemicals.

   The loss of revenue from product contaminated with toxic chemicals was illustrated in late 2013 when China banned all imports of shellfish from the West Coast due to arsenic contamination.[85]

   > *"China has suspended imports of shellfish from the West Coast of the United States – an unprecedented move that cuts off a $270 million Northwest industry from its biggest export market. China said it decided to impose the ban after recent shipments of geoduck clams from Northwest waters were found by its*

[81] U.S. Environmental Protection Agency (EPA). (2013) Reanalysis of fish and shellfish consumption data for the Tulalip and Squaxin Island Tribes of the Puget Sound Region: Consumption Rates for Consumers Only. National Center for Environmental Assessment, Washington, DC; EPA/600/R-06/080F

[82] Washington Department of Ecology, December 2011. Technical Workshop on Fish Consumption in Washington, Summary. http://www.ecy.wa.gov/toxics/docs/20111212_fishworkshop_summary.pdf http://www.ecy.wa.gov/toxics/fish_publicinvolvement.html

[83] WA Department of Fish and Wildlife, 2010. Fish, Wildlife, and Washington's Economy. Olympia, WA. http://wdfw.wa.gov/publications/01145/wdfw_01145.pdf

[84] National Marine Fisheries Service, NOAA Office of Science and Technology. 2011. Fisheries Economics of the United States 2011, Pacific Region Summary. http://www.st.nmfs.noaa.gov/Assets/economics/documents/feus/2011/FEUS2011%20-%20Pacific.pdf

[85] Garnick, Coral. December 20, 2013. State closes geoduck harvest after China ban. Seattle Times. http://seattletimes.com/html/businesstechnology/2022497142_geoduckarsenicxml.html

own government inspectors to have high levels of arsenic… (Campbell/KCTS9, 2013)[86]

4. **Fish consumption has been regionally, nationally, and internationally recognized as part of the basic right for indigenous people to be secure in their means of sustenance.** [87, 88,89] The cultural value of fish consumption in Asian and Pacific Islander communities has also been recognized in the Pacific Northwest region. Tribes of the Pacific Northwest have been united in their support of water quality standards that will protect the health of tribal people in the exercise of fishing rights.[90]

B. *The proposed fish consumption rate of 175 g/day is lower than the rates of contemporary tribal fish consumers or heritage rates of consumption.*

The proposed fish consumption rate of 175 grams per day in the Washington Department of Ecology's proposed human health criteria is lower than contemporary consumption rates for tribal consumers, does not account for the suppression of fish consumption through habitat loss and lack of access to fisheries, and falls far short of heritage fish consumption values.

This section provides a summary of tribal fish consumption studies in the Pacific Northwest, the publication of a Technical Support Document on FCRs by the Department of Ecology in 2011 and associated comments, issues related to the selection of a percentile in setting protective standards, sources of suppression, and the need to include salmon in the fish consumption rate.

---

[86] Campbell, Katie. December 12, 2013. China imposes first-ever West Coast shellfish ban. KCTS9

[87] FAO, 2014. Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines): http://www.fao.org/3/a-i4356e.pdf

[88] Puget Sound Partnership; August 9, 2012. Resolution 2012-04 Fish Consumption Rates

[89] Seattle Human Rights Commission. March 12, 2014. Resolution 14-01: Calling on Washington State Department of Ecology to Raise the Statewide Fish Consumption Rate

[90] Affiliated Tribes of Northwest Indians (ATNI). Resolutions 12-19, 12-54, 13-44, 14-56 related to FCR and cancer risk levels in water quality rules.

1. **Tribal Fish Consumption Studies**

Comprehensive tribal fish consumption studies have been regionally available since 1994. A summary of tribal fish consumption rates is listed in the following table, and followed by a short description of Pacific Northwest tribal fish consumption studies.

Table of fish consumption rate surveys from Tribal FCR studies:

Tribal Survey and year published	**Type of Fish**	**Mean**	**Median**	**75th percentile**	**90th percentile**	**95th percentile**	**99th percentile**
Columbia River Tribes 1994	Finfish (A, F)	63	40	60	113	176	389
Tulalip Tribe 1996	Finfish (A, E) Shellfish	72	45	85	186	244	312
Squaxin Island Tribe 1996 (upper value) and EPA 2013 reanalysis (lower value)	Finfish (A, E) Shellfish	73	43	-	193	247	-
		95			283	318	
Suquamish Tribe 2000	All seafood	214	132	284	489	797	
Lummi Nation 2013	Finfish (A, E) Shellfish	383	314	-	800	918	-
Asian/Pacific Islanders 1999*	Finfish (A, E) Shellfish	117	78	139	236	306	-

A=Anadromous, F=Freshwater, E=Estuarine. All values expressed in grams per day.

*Also included for comparison is a study of seafood consumption by Asian and Pacific Islander communities in King County. (Sechena, et al., 1999)

Annotated References: Tribal Studies:

- CRITFC (Columbia River Inter-Tribal Fish Commission), 1994. A fish consumption survey of the Umatilla, Nez Perce, Yakama and Warm Springs Tribes of the Columbia River Basin. Columbia River Inter-Tribal Fish Commission Report reference #94-03, Portland, Oregon.

  The CRITFC study was used as a major fish consumption reference in the development of the water quality standards in Oregon, following the rejection of Oregon's proposed FCR standard of 17.5 grams per day by the EPA. The CRITFC study documented a FCR of 176 g/day at the 95th percentile of respondents in the study. In the interest of protecting more tribal consumers, and the recognition that fisheries were severely suppressed at the time, Columbia River tribes advocated for the use of the 99th percentile value, or 389 g/day, during the development of the standards, but a final criterion of 175 was adopted by OR Department of Environmental Quality and approved by EPA in 2011. The difference between the study value of 176 g/day and the standard at 175 g/day is attributable to rounding by OR DEQ.

  "DEQ determined that a fish consumption rate of 175 g/d is a reasonable and protective fish consumption rate to use as the basis for Oregon's human health criteria. A fish consumption rate of 175 g/d represents approximately 6.2 ounces per day (or approximately 23 8-oz fish or shellfish meals per month). This rate represents the 95th percentile value from the Columbia River Inter-Tribal Fish Commission study and is within the range of the 90th percentile values from various studies from the Northwest…." (Oregon DEQ, 2011. p 9)[91]

  In response to public questions about the validity of tribal data and requests to have individual response data released, CRITFC submitted a letter to the Department of Ecology in 2012 describing the study design, implementation, and review in detail.[92]

[91] Oregon Department of Environmental Quality, 2011. Human health criteria final issue paper. Matzke, A., D. Sturdevant and J. Wiegle.

[92] Columbia River Inter-Tribal Fish Commission; March 19, 2012. Letter from Executive Director Babtist Paul Lumley to Ecology Director Ted Sturdevant. Published by the WA Department of Ecology as Attachment B to the Fish Consumption Rate Technical Support Document, Version 2.0 in August, 2012.

- Toy, K.A., Polissar, N.L., Liao, S., and Mittelstaedt, G.D. 1996. A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region. Tulalip Tribes, Department of Environment.

  Puget Sound tribes conducted dietary surveys beginning in 1996, with the involvement of EPA the University of Washington, and other advisors in the field of public health. The 1996 assessment of the Tulalip and Squaxin Island tribal fish consumption included finfish and shellfish, and estimated an FCR of 244-247 at the 95th percentile.

- U.S. Environmental Protection Agency (EPA). (2013) Reanalysis of fish and shellfish consumption data for the Tulalip and Squaxin Island Tribes of the Puget Sound Region: Consumption Rates for Consumers Only. National Center for Environmental Assessment, Washington, DC; EPA/600/R-06/080F.

  US EPA worked with the earlier data for Tulalip and Squaxin Island Tribes to remove non-consumers from the estimated fish consumption rate, as inclusion of non-consumers would inappropriately skew the FCR lower, thereby underestimating the potential risk to fish consumers. The FCR for the Squaxin Island Tribe at the 95th percentile for consumers was estimated at 318 g/day (the earlier estimate including non-consumers was 247 g/day).

  EPA and the Squaxin Island Tribe further analyzed the data to assess differences in consumption per body weight among adult males, females, and children. They found that children consumed fish at a rate almost 3 times that of adult males.

- Suquamish Tribe, 2000. Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation, Puget Sound Region. August 2000.

  The Suquamish survey was funded by the Agency for Toxic Substances and Disease Registry (ATSDR) through a grant to the Washington State Department of Health. The Suquamish Tribe was designated as the study manager and was the co-principal investigator with DOH in all aspects of the study. Technical peer reviewers and consultants included staff from DOH, Ecology, EPA, the University of Washington, and the Fred Hutchinson Cancer Research Institute.

Suquamish data indicated substantially higher fish consumption rates than the earlier studies, with a mean consumption rate of 214 g/day and a 90th percentile value of 489. The Suquamish analysis was referenced by the WA Department of Health in 2006, indicating that high-end fish consumers from the tribe would exceed PCB health quotients in Puget Sound Chinook and coho salmon.

- Lummi Natural Resources Department, Water Resources Division. 2012. Lummi Nation Seafood Consumption Study. (J. Freimund, M. Lange and C. Dolphin; August 31, 2012)

  The Lummi Seafood Consumption Study consisted of recall interviews to assess 1985 consumption levels. The use of this technique was intended to identify fish consumption rates before modern salmon fishing was suppressed by the curtailment of US fisheries and the listing of some Puget Sound salmon as threatened species in the late 1990's and 2000's.
  The Lummi survey identified a mean FCR for adult male respondents of 383 grams per day, and values of 800 and 918 g/day for the 90th and 95th percentiles, respectively.

- Colville Confederated Tribes:
  Westat, 2012. Upper Columbia River Site Remedial Investigation and Feasibility Study: Tribal Consumption and Resource Use Survey. Final Report.
  http://www.epa.gov/region10/pdf/sites/ucr/tribal_consumption_resource_use_survey_final_report_june2012.pdf

  The study of the Colville Confederated Tribes was a comprehensive human health risk assessment associated with a settlement agreement between Teck Cominco Metals, Ltd., US Dept. of Justice, and US Environmental Protection Agency. The purpose of the study was to analyze human health risk at the Upper Columbia River remedial site for both dietary and non-dietary use of resources. A FCR in a comparable data format to the other tribal studies is not available.

- Additional references on regional fish consumption studies:
  i. Sechena, R., C.Nakano, S.Liao, N.Polissar, R.Lorenzana, S.Truong, and R.Fenske. "Asian and Pacific Islander Seafood Consumption Study in King County, Washington." EPA 910/R-99-003. May 1999.
     http://www.epa.gov/region10/pdf/asian_pacific_islander_seafood_consumption_1999.pdf

ii. Oregon Department of Environmental Quality; 2011. Human Health Criteria Final Issue Paper; Toxics Rulemaking 2008-2011. (A. Matzke, D. Sturdevant, and J. Wigal; May 24, 2011).

iii. McCormack, C., 2011. Fish Consumption Rate Report: Brief Overview and Issues for Consideration. Presentation to the Washington Department of Ecology Technical Workshop on Fish Consumption, December 12, 2011. http://www.ecy.wa.gov/toxics/docs/20111212_fishworkshop_mccormack.pdf
http://www.ecy.wa.gov/toxics/fish_publicinvolvement.html

2. Ecology's Technical Support Document and Comments

The Washington Department of Ecology published a Technical Support Document in September 2011 as a comprehensive overview of regional fish consumption data in Washington. Ecology had indicated to tribes and EPA in 2010 that they intended to complete an analysis of fish consumption rates in the context of setting Sediment Management Standards—information which would subsequently be transferrable to the development of Water Quality Standards. Ecology personnel from the Toxics Cleanup Program undertook the analysis of regional fish consumption data and published the Technical Support Document in September 2011, which included the following preliminary recommendation:

> *"Ecology has concluded that available scientific studies support the use of a default fish consumption rate in the range of 157 to 267 grams per day (g/day). The preliminary recommendation of this report is that default fish consumption rates should be within this range for state regulatory purposes."*

Ecology arrived at this range by conducting a composite statistical analysis of the tribal and Asian/Pacific Islander data that met Ecology's requirements for scientific validity. The recommendation for the composite range represented values from the 80th to the 95th percentiles.

Comments from the University of Washington School of Public Health submitted during the public comment period stated that the September 2011 version of the

FCR Technical Support Document was, *"a robust, scientific-based assessment that is both clear and transparent."* [93]

Ten tribes, two tribal consortiums, and the Center for Indian Law and Policy (Seattle University School of Law) commented on the 2011 Technical Support Document. (see attached folder: Comments early 2012) Comments included the following points:

- NWIFC comments indicated that many tribes could support an FCR at or above the high end of the recommended range of 157-267 g/day as a step forward, but noted that many tribes have documented higher rates and that the low end of the range was below mean consumption levels for some tribes. NWIFC also stated that 175 g/day is a low rate, and described contemporary rates at approximately 500 grams per day and heritage FCRs of 1,000 g/day.[94]

- Comments from Swinomish, Squaxin Island, and CRITFC all discussed the need to factor in the suppression of treaty fishing opportunities and fisheries resources.

- Lower Elwha Klallam and CRITFC described the uptake of toxic chemicals in salmon throughout their life cycle and the need to include salmon in an FCR. The need to include salmon was reiterated in most tribal comments.

- The Spokane Tribe indicated that they were waiting for EPA approval of a fish consumption rate of 865 grams per day in tribal water quality standards (since approved—see references for letter).

- The Lummi Nation stated that the use of an 80th percentile value was too low and that the lower bound should be at least the 90th percentile, and that 95th was typical. The Lummi comments also spoke to the need to

[93] Faustman, E.M. January 18, 2012. Letter from the Director of the Institute for Risk Analysis and Risk Communication in the Department of Environmental and Occupational Health Sciences, University of Washington to M. Hankins, Toxics Cleanup Program, WA Department of Ecology

[94] NWIFC; January 3, 2012. Letter from Chairman Billy Frank, Jr. to WA Department of Ecology Director Sturdevant re: comments on fish consumption rates technical support document.

include anadromous fish in the rate, and described their seafood consumption study, then in progress.

- Suquamish comments indicated that the upper bound of the recommended range was lower than the 75th percentile of the FCR study of Suquamish tribal members and recommended that Ecology use 90th to 95th percentile values.

- Jamestown S'Klallam indicated that they did not have a tribal-specific fish consumption study at the time, but described examples of suppression from bacterial contamination of shellfish in Dungeness Bay and habitat degradation in the Dungeness River that would affect a tribally-derived rate.

- Colville Confederated Tribes described their health risk assessment and indicated that preliminary results showed that over 83% of tribal members actively consumed local sources of fish.

- The Kalispel Tribe commented that fish consumption rates and other human health criteria should be established independently from economic considerations, in order to protect human health.

- The Yakama Nation stated that *"Asking us to accept health risk at the 90th percentile is the same as asking us to accept that over 1000 Yakama tribal members will be subjected to increased health risk because they choose to eat a traditional diet."*

- The Center for Indian Law and Policy at the Seattle University School of Law summarized treaty fishing rights, historical consumption practices, suppression factors that have reduced fish consumption, and the need to include salmon.

Comments on the Technical Support Document Version 1 prompted the Department of Ecology to prepare supplemental information: estimating annual fish consumption rates using short term dietary surveys, recreational fish consumption rates, health benefits and risk of consuming fish and shellfish, chemical contaminants in dietary protein sources, and salmon life history and chemical body

burdens.[95] Ecology also commissioned a statistical analysis of national Washingon State fish consumption data, published as a draft in September 2012 and a final in September, 2014. [96]

Washington Department of Health personnel provided a presentation at the Environmental Law Education Center conference in June, 2012, endorsing a fish consumption rate of 175 g/day in Washington State standards at a minimum.[97]

At the request of industry (described previously), Ecology withdrew the 2011 Technical Support Document in July of 2012. Ecology did not dispute the findings of the first version of the document, but indicated that they had concluded that the numerical recommendation was a policy decision requiring further discussion.[98] A preliminary draft of Technical Support Document Version 2.0 was issued in August 2012 and a Final in January 2013.

During preparation of the second version of the document, staff from the WA Department of Health commented that they were concerned about the removal of the recommended range from the first version of the document:

> *"I am concerned that the consumption rates cited as recommendations in the previous draft were removed from the current document. DOH believes that there are ample well conducted, scientifically defensible studies available as described in the TSD to establish a range of consumption rates. DOH has previously commented to Ecology that a fish consumption rate should, at a minimum, be on par with Oregon's adopted value of 175 grams per day. DOH also recommended that a range of rates be considered, with the low end of 175 grams per day, along with higher rates associated with many Puget Sound Tribes as well as ethnic populations as detailed in the document. DOH would also suggest that Ecology determine whether the fish consumption rate of 500 pounds per capita per year (which equates to 620 grams per day)*

[95] WA Department of Ecology; July 20, 2012. Supplemental information to support the fish consumption rate technical support document.

[96] Polissar, N.L., M. Neradilek, A.Y. Aravkin, P. Danaher, and J.Kalat. September 7, 2014. Statistical Analysis of National and Washington State Fish Consumption Data. Final. Mountain-Whisper-Light Statistics. Seattle, WA.

[97] McBride, D.; December 20, 2012. Email to Craig McCormack, Washington Department of Ecology re: Fish Consumption.

[98] WA Department of Ecology; July 16, 2012. Open letter from Director Ted Sturdevant.

as cited in the 1974 Boldt decision on treaty rights is a legally enforceable rate.[99]

As part of the record for the Department of Ecology's proposed rule for Human Health Criteria in the Washington State Water Quality Standards, NWIFC hereby incorporates by reference:

- Washington Department of Ecology; September 2011. Fish Consumption Rates: Technical Support Document—A Review of Data and Information About Fish Consumption in Washington. Publication no. 11-09-050. Washington Department of Ecology Toxics Cleanup Program. Olympia, WA. (Note that this later became known as Technical Support Document Version 1.0)

  Also incorporated are documents referenced in the Technical Support Document Version 1.0, all comments received during the public comment period, Ecology's publication No. 12-09-055 "Response to Comments on Fish Consumption Issues," and all attachments and supplements issued by the Department of Ecology associated with the Technical Support Document, Version 1.0, whether draft or final.

- Washington Department of Ecology; January 2013. Fish Consumption Rates: Technical Support Document—A Review of Data and Information About Fish Consumption in Washington, Version 2.0, Final. Publication no. 12-09-058. Washington Department of Ecology Toxics Cleanup Program. Olympia, WA.

  Also incorporated is the Public Review Draft of Version 2.0 issued in August, 2012, all comments received during the public comment period, and all references, attachments and supplements issued by the Department of Ecology associated with the Technical Support Document, Version 2.0.

3. Percentile selection

Public health standards are not typically set on an average or median value when considering risk to a population. Regulatory standards are based on the goal of protecting most of the population, not just the average person (mean) or only half of the population (median).

[99] McBride, D. Washington Department of Health comments to M. Hankins, Washington Department of Ecology via email, quoted in internal memo summary August 17, 2012.

Ecology indicated in the 2011 Technical Support Document that the selection of a value for Reasonable Maximum Exposure under the Model Toxics Cleanup Act is typically set at 90 to 95 percent of the exposure distribution. Additionally,

> *"Selection of an RME approximately between the 80th and 95th percentile is consistent with Ecology's policy choices on target or acceptable risk. A higher percentile (for example, the 99th percentile) might be preferable if Ecology was basing regulatory decisions on a higher acceptable risk range (such as 1 in 10,000). However, this analysis has not considered changes to the acceptable cancer risk level."* (Ecology Technical Support Document 2011)

Also note previous comments from Oregon Department of Environmental Quality, indicating that a standard in the 90th to 95th percentile is considered appropriate. Oregon tribes advocated the use of the 99th percentile for a fish consumption rate during the focus sessions and rule formulation.

The EPA Exposure Factors Handbook recommends a level of reasonable maximum exposure for a population at risk at the 90th to 98th percentile.[100]

Tribes commented on the 2011 Technical Support Document (Version 1) that the recommended FCR default range of 157-267 was low, as it was bounded on the upper end at the 95th percentile. Similarly, the Summary of Fish Consumption Rates listed in section 6.2 of the Technical Support Document Version 2.0 includes fish consumption values from both the Columbia River and Puget Sound studies, but does not include fish consumers at the greatest risk, since values that are listed in the summary are bounded by the 95th percentile as an upper limit.

In sum, it is not common in establishing public health standards to use values that reflect median or average levels of exposure to toxic chemicals that may result in death and impairment of human health. The use of percentile values that protect over 90 percent of the population at risk are recommended.

4. A Fish Consumption Rate of 175 g/day represents a suppressed rate

Researchers have written at length about the many factors that have led to suppressed fish consumption in tribal communities. O'Neill, for example lists suppression factors

[100] US Environmental Protection Agency, 2011. Exposure Factors Handbook: 2011 Edition. National Center for Environmental Assessment. Washington D.C. EPA/600/R-09/052F. Glossary P G-8

including: habitat degradation and loss of resource productivity and abundance; bacterial and chemical contamination of fishing grounds; bacterial and chemical contamination of fish; the perception among tribal members that fish may not be safe to eat; blocked access to fishing grounds from roads, dams, structures, fencing of private property, and harassment; and intercepting fisheries from commercial fishermen in Washington, Alaska, and Canada. Suppression among tribal consumers has resulted directly from potential exposure to toxic chemicals in closures and health notifications, or indirectly because their consumption rates have been under-estimated due to the lack of access or reduced availability of the resource.[101]

Ecology indicated in the 2011 Technical Support Document that the recommended range of 157-267 grams per day did not account for suppression of fisheries, and that researchers suggested a tribal fish consumption rate above 450 grams per day.

Recently, EPA recognized the significance of contamination in suppressing tribal fisheries in Attachment A of their decision to deny the proposed water quality standards for the state of Maine:

> *"Second, the data used to determine the fish consumption rate for tribal sustenance consumers must reasonably represent tribal consumers taking fish from tribal waters and fishing practices unsuppressed by concerns about the safety of the fish available to them to consume."* [102]

5. Fish Consumption Rates over 500g/day have been documented in estimates of heritage rates and in contemporary dietary studies. [103, 104]

[101] O'Neill, C. 2013. Fishable waters. American Law Journal 1:2 (Spring 2013)

[102] U.S. Department of the Interior, Office of the Solicitor. January 30, 2015. Letter from Hilary C. Tomkins to Avi Garbow, General Counsel, U.S. Environmental Protection Agency. RE: Maine's WQS and Tribal Fishing Rights of Maine Tribes

[103] O'Neill, C.A. 2007. Protecting the Tribal Harvest: The Right to Catch and Consume Fish. J. Envtl. Law and Litigation. Vol. 22, 131

[104] National Environmental Justice Advisory Council, 1992. Fish Consumption and Environmental Justice: A report developed from the meeting of the National Environmental Justice Advisory Council meeting of December 3-6, 2001.

Contemporary and heritage rates of fish consumption in excess of 500 grams per day have been documented and described at length in the references below. Examples include:

Suquamish Tribe[105]	797g/day, 95th percentile, contemporary Maximum reported: 1,453 g/day (Suquamish Tribe, 2000) Note: In the Suquamish survey, high consumption rates were believed to reflect actual high consumption and were not treated as outliers. The statisticians found that the calculations of percentiles were virtually unaffected by the inclusion of the higher consumption rates.
Lummi Nation	918 g/day, 95th percentile, males, estimated 1985 rate (Lummi Nation, 2012) Note: the Lummi Nation study did not utilize the methods from contemporary dietary studies of fish consumption. In an effort to estimate suppressed fish consumption from the loss of fishing opportunity, the Lummi Nation study estimated 1985 consumption through recall surveys and other data.
Umatilla (CTUIR)	540 g/day, mean Contemporary consumption traditional fishing families (Harris and Harper, 1997)[106]
"Boldt Rate"	620 g/day, mean, salmon consumption US v. Washington 1974
Spokane Tribe	865 g/day FCR Revised Surface Water Quality Standards of the Spokane Tribe of Indians, Submitted April 2010. Approved by EPA December 19, 2013 [107]

[105] Suquamish Tribe, 2000. Fish consumption survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation.

[106] Harris, S.G. and B.L. Harper. 1997. A Native American exposure scenario. *Risk Analysis* 17(6):789-795

[107] U.S. Environmental Protection Agency, Region 10. Letter to Spokane Tribal Chairman Rudy Peone, December 19, 2013 and attached Technical Support Document.

Columbia River	1,000 g/day, Pre-dam rate for Columbia River Plateau Tribes[108] [109]

C. *The Department of Ecology has erred in characterizing a tribal "endorsement" of the proposed fish consumption rate at 175 g/day, particularly without a full set of other protective human health criteria.*

1. **In contrast with the description advanced by the Department of Ecology in the Overview of Key Decisions document, tribes do not "endorse" a fish consumption rate of 175 grams per day in the state's proposed draft rule for human health criteria, particularly in isolation from other proposed changes in the HHC**. Some Washington tribes indicated a willingness to consider a potential compromised fish consumption rate of at least 175 g/day in state standards during 2012-2014 as a step forward, on the explicit assumption that the protective level of other human health criteria would not be weakened -- an assumption that is no longer valid in the state's proposed draft rule.

   An "Overview of Key Decisions in Rule Amendment" (referred to hereafter as the Key Decisions document) was issued with the Draft Rule in January, 2015 as Publication no. 14-10-058. In the Key Decisions document, the Department of Ecology states that,

   > *"Ecology is proposing to use an FCR of 175 g/day for calculating the HHC based on a state-specific risk management input made by Governor Inslee [URL citation referring to Governor's news release in July 2014]. This value is representative of average FCRs ("all fish and shellfish," including all salmon, restaurant, locally caught, imported, and from other sources) for highly exposed populations that consume both fish and shellfish from Puget Sound waters. 175 g/day is considered an "endorsed" value. This numeric value was used by the Oregon Department of Environmental Quality to calculate HHC in a 2011 rulemaking.* ***Groups endorsing the use of this numeric value include EPA and several tribes.***

[108] Walker, D.E. 1992. Productivity of tribal dipnet fishermen at Celilo Falls: Analysis of the Joe Pinkham fish buying records. *Northwest Anthropological Research Notes* 26:123-135.

[109] Walker, D.E. and L.W. Pritchard. 1999. Estimated radiation doses to Yakama Tribal fishermen. Walker Research Group, Boulder, CO

Average FCR values for various highly exposed groups that harvest both fish and shellfish from Puget Sound waters are found in Ecology, 2013." (emphasis added)

Ecology has erred in characterizing the FCR of 175 g/day as an endorsed value. No such formal compromise, endorsement, or negotiated value presently exists with the state as a stand-alone value independent from other HHC.

As described previously in Section I. regarding the state's delay in adopting revised human health criteria, the Department of Ecology requested the NWIFC to provide outreach services to Washington tribes in 2011-2012 in order to develop a consistent FCR value to be used as a default in both toxic cleanup and water quality standards. In comments to the WA Department of Ecology about the 2011 FCR Technical Support Document, NWIFC conveyed tribal input that the FCR should be at least as protective as the standard set in Oregon, of 175 grams per day. Such a statement did not constitute an endorsement. The NWIFC comments explicitly stated that,

"Tribes assume that an increase in the fish consumption rate that is protective of human health will not coincide with a reduction of other protective factors affecting the standards. For example, the target cancer risk level should not be relaxed as a condition of a more protective fish consumption rate." [110]

Given that the existing FCR value was at that time (and remains) 6.5 grams per day, NWIFC stated in 2012 that many tribes viewed 175 g/day as a step forward, while pointing out that it did not fully reflect tribal consumption. By coupling an FCR at 175 g/day with a reduction in the protective level of other HHC, many chemical criteria that are directly responsible for existing fish health advisories or closures will not improve; this action does not constitute a step forward by the Department of Ecology.

Ecology has also characterized an FCR of 175 g/day as a "negotiated" value used in Oregon's human health criteria, which again misrepresents the context of how such a value was derived. For example, Ecology presented three alternatives to the existing Fish Consumption Rate in a public workshop on November 6, 2013:[111]

[110] NWIFC; January 3, 2012. Letter from Chairman Billy Frank, Jr. to WA Department of Ecology Director Sturdevant re: comments on fish consumption rates technical support document.

[111] Washington Department of Ecology; November 6, 2013. Water Quality Standards rulemaking – general information meeting. Morning and afternoon presentations.

Alternative 1 (125 g/day) was presented as the mean of the fish consumption rate surveys of 3 Puget Sound tribes.

Alternative 2 (175 g/day) was presented as the "Negotiated value used in Oregon's updated Human Health Criteria. Based on 90th to 95th percentile of Oregon Fish Consuming populations."

Alternative 3 (225 g/day) was presented as the "Mean of the highest highly exposed fish consumption study and recreation fish consumption."
(Morning presentation, slide 28)

Ecology's characterization of Alternative 2 detaches 175 g/day from its data-derived value as the 95th percentile of consumers in the 1994 CRITFC study. Oregon tribes have indicated that the discussions in Oregon centered on the use of the 95th versus the 99th percentile of fish consumers, and that a decision to proceed with 175 g/day was a major compromise on their part. As noted elsewhere, the difference between the CRITFC value of 176 g/day for the 95th percentile and the value of 175 g/day recommended by OR DEQ was attributable to rounding.

Tribes also point out that the EPA's approval of a FCR of 175 g/day in Oregon's standards does not constitute an "endorsement" of the FCR in the proposed rule issued by Washington. The US Environmental Protection Agency Region 10 Administrator wrote repeatedly to the WA Department of Ecology in 2012-2014 to spur movement on the development of human health criteria, and indicated that the FCR of 6.5 g/day was inadequate. EPA stated that Ecology should use regionally-available scientific data, including information on fish consumption by tribes, Asian/Pacific Islander groups, and subsistence fishers, to establish an FCR for Washington. EPA encouraged consistency with the Oregon value of 175 g/day, in the context of the approved Oregon human health criteria, noting that some of the same studies used to derive Oregon's FCR would be applicable in Washington. In a letter to Director Bellon on April 8, 2014, Regional Administrator McLerran also described the need to ensure that other human health criteria, in particular the cancer risk level, were also sufficiently protective of tribes and all high fish consuming communities.

2. **The Department of Ecology has offered an inconsistent and incomplete rationale for the state's decision in setting the FCR, which fails to fully consider the scientific record in favor of industry influence and political judgment.**

a. In the 2010 Triennial Review, representatives for industry began advocating a decrease in the cancer risk level if the FCR were to increase, a potential trade-off of HHC which continued to be advanced in various Ecology public forums for the development of Sediment Management Standards and Water Quality Standards in 2012-2013. Boeing's attempts to influence the establishment of a fish consumption rate in 2012 and 2013 were documented by investigative journalists, and appear to have led to the removal of a recommended range for a FCR in the first Technical Support Document by the Department of Ecology. (See discussion in the section on delay, and Ecology Delegates Table records, 2012-2013).

b. Ultimately, Governor Inslee made the decision on fish consumption rates in 2014, although the scientific and statistical basis for this value remains unclear.

"Ecology is proposing to use an FCR of 175 g/day for calculating the HHC, based on a state-specific risk management input made by Governor Inslee." (Overview of Key Decisions, 2015)

The Key Decisions document accompanying the draft rule lists Governor Inslee's press release[112] as the basis for the "risk management input" of 175 g/day.

The Governor's decision included direction to the Department of Ecology to use input values of 175 g/day for the FCR and a cancer risk level of 10^{-5} (one-in-100,000) in the draft rule for human health criteria. Inslee also connected the rule-making process to a legislative proposal to be developed. Inslee's decision was released four months after discussions at a Governor's Informal Advisory Group had ended. The GIAG consisted of selected representatives from industry, local governments, an individual from the board of an environmental organization, and four tribes. At the conclusion of the GAIG discussions in March, three of the participating tribal representatives submitted comments to the Governor reiterating that 175 g/day was a floor value and a major compromise, and that it was directly linked to other criteria including a cancer risk rate of 10^{-6} (one-per-million) and the inclusion of salmon.[113]

[112] Governor Jay Inslee; July 9, 2014. "Inslee takes new approach to create meaningful, effective state clean water standards." http://www.governor.wa.gov/news-media/inslee-takes-new-approach-create-meaningful-effective-state-clean-water-standards?id=293

[113] Forsman, L. B. Cladoosby and W.R. Allen. March 14, 2014 re: Washington State water quality standards.

c. Ecology's discussion of fish consumption rates in the Key Decisions document is particularly telling in its omission of any specific linkage to data in selecting an FCR of 175 g/day. The bulk of Ecology's rationale is a contention that the FCR is a series of risk management decisions at the discretion of the state to determine the population (general or high fish consumers) and statistic (mean, median, percentile) to be used in determining the calculations. Ecology then provides an outdated and incomplete history of EPA regulatory actions and guidance to support this assertion, rather than data. In contrast, Ecology's internal discussion of the FCR Technical Support Document during the development of Sediment Management Standards in 2012 emphasis the need for measures of technical defensibility.[114]

d. Ecology's contention that they have chosen to use an average value is not supported in the Key Decisions document, and, if used, would not be an appropriate risk management decision.

> *"The statistic used by the EPA and states has historically been an average of a national general population data set. The FCR incorporated into the NTR is an average.* ***Ecology is continuing use of the average statistic as described above and below.****" (Key Decisions document)*

Ecology later states that,

> "***Average*** *FCR values for various highly exposed groups that harvest both fish and shellfish from* ***Puget Sound*** *waters are found in* ***Ecology, 2013****." (emphasis added)*

Tribes strongly disagree with Ecology's implied "risk management" decision to use "average values" in determining a fish consumption rate since these are far below the FCR levels of most tribal fish consumers, and are thus insufficient to protect tribal communities from harm. Tribes also question why Ecology has singled out Puget Sound waters for the discussion in the Key Decisions document.

The point of including a fish consumption rate in the equation is to protect *most* of the population from being exposed to chemicals that may cause illness and even

[114] Niemi, C. 2012. Email in Department of Ecology internal memo from M. Hankins with summary of comments; August 17, 2012.

death. A FCR of 175 g/day is not reflective of tribal FCRs at 90%tile to 95%tile, and thus not protective of many of tribal peoples.

e. How were the Department of Ecology's Technical Support Documents used to determine a fish consumption rate? The Key Decisions document repeatedly lists "Ecology 2013" as a summary of relevant data without stating how it was applied to derive the fish consumption rate. Presumedly, "Ecology 2013" is a reference to Ecology's FCR Technical Support Document (TSD), version 2.0. However, the references in the Key Decisions document for "Ecology, 2013" list only Chapter 6.4 which is the section on "Salmon" in a chapter (6) that is entitled "Using Scientific Data to Support Regulatory Decisions." Assuming that Ecology intended to refer to the summary table of fish consumption rates in section 6.2 of the TSD 2.0, there is a list of several FCR values at various percentiles for national studies and Columbia River and Puget Sound tribes. In short, there is no correct reference to find values for various groups, and no statement how these values, once found, were linked to a decision for an FCR of 175 g/day.

f. The state has selected a FCR of 175 g/day, which is in the low end of the Department of Ecology's recommended range, without providing sufficient technical justification. In the first version of the Technical Support Document, the Department of Ecology recommended a range of 157-267 g/day. As previous described, tribes considered this range to be low based on the available data, lack of consideration of suppression, etc. In setting the FCR, the state has also disregarded previous recommendations from WA Department of Health staff (McBride, 2012) and an interagency Risk Assessment Forum (Ecology, 1999) indicating that 175 g/day should be considered a **minimum** value to adequately protect tribes and high consuming populations within Washington.

> *"Washington State Department of Health's Position is that 175 grams / day is the* ***minimum*** *in Washington State's fish consuming populations because the 175 grams / day estimate in the Columbia River Inter-tribal Fish Commission Survey does not fully account for the range of shellfish harvested and consumed by Washington State's fish consuming populations. (McBride, December 2012) [emphasis in original]* [115]

[115] McBride, D.. December 20, 2012. Memo to C. McCormack re: Fish Consumption.

The Washington Department of Health and other state and federal recommendations have indicated that the FCR must be viewed in the context of other HHC. For example, the 1999 Risk Assessment Forum report[116] stated that a recommendation of 175 g/day was based on 30 year exposure and a body weight of 70 kg and that higher FCR values should be considered if these factors were less protective than assumed. Proposed standards and body weight are now less protective in the amended rule, as is the cancer risk level.

g. Tribes concur with Ecology's implied decision that the fish consumption rate was based on tribal fish consumption studies as representative of "highly exposed populations." However, it is unclear that this is the intent characterized in the following passage from the Key Decisions document:

> *"Ecology has made the risk management decision to base the fish consumption rate used in the HHC equation on "highly exposed populations," which include, among other groups, the following: tribes, Asian Pacific Islanders, recreational and subsistence fishers, immigrant populations, etc. Fish consumption rates developed in several surveys around the Pacific Northwest are summarized and discussed in a recent Ecology publication (Ecology 2013)."*

The state has little choice but to base the FCR in Washington on consumption by tribes and others who bear the brunt of the state's "risk management," but they must select a statistic that will be protective of most of the tribal population, and more than an average level of consumption.

h. The Department of Ecology has deferred a decision on the fish consumption rate and other HHC to the Governor, but they retain the responsibility for presenting the rule amendment language and decision documents. Ecology appears to be intentionally disregarding their own Technical Support Documents, despite publishing two versions of the TSD—a document that presented a thorough analysis of regional fish consumption rates available at the time, and which underwent extensive technical and public review.

If the state has selected an FCR of 175 g/day because it was the same as the Oregon standard, then they should simply say so. In contrast with Ecology's description in

[116]Washington State Department of Ecology, 1999. Draft analysis and selection of fish consumption rates for risk assessments and risk-based standards. Ecology Pub. 99-200. L. Kiell and L. Kissinger and an interagency Risk Assessment Forum. https://fortress.wa.gov/ecy/publications/publications/99200.pdf

the Key Decisions document, this rate is not an average, is not clearly based on various highly exposed groups for Puget Sound, and is not "endorsed" by tribes. The relationship to the technical analysis conducted by the Toxics Cleanup Program in the development of Sediment Management Standards is unclear, except that the FCR of 175 g/day falls within the range (157-267 g/day) that was recommended, and then removed for policy reasons, in the Technical Support Document, version 1.0. Tribes reiterate that the value of 175 g/day is low, based on technically defensible data.

D. Salmon must be included in the fish consumption rate.

1. Tribes support the Department of Ecology's decision to include all fish in the fish consumption rate, including all species of salmon.

Heritage and contemporary studies of Pacific Northwest tribes (cited previously) show that tribal communities eat a variety of freshwater, marine, and estuarine fish and shellfish year-round. Tribes harvest fish and shellfish that originate, rear, migrate, or reproduce in Washington's freshwater, estuarine and marine waters. Tribal treaty harvest is geographically defined by usual and accustomed fishing areas; tribes thus do not have the legal flexibility to relocate harvest patterns and practices if fisheries resources in a given area become contaminated.

During the development of revised Sediment Management Standards in Washington in 2011-2013, considerable discussion was devoted to the question of whether salmon should be included in the fish consumption rate. Salmon are a "first food" for tribal people and a nutritional, cultural, and economic mainstay for tribal communities as well as a treaty-reserved resource for many tribes. Fish health advisories throughout Washington include harvest closures and consumption limits on salmon due to toxic chemicals. [117],[118]

The 2006 evaluation of toxic chemicals in Puget Sound by WADOH indicated that,

[117] Washington Department of Health; March 22, 2015. Fish Consumption Advisories. Accessed from http://www.doh.wa.gov/CommunityandEnvironment/Food/Fish/Advisories

[118] Washington Department of Health; October, 2006. Puget Sound Fish Consumption Advice. Accessed from http://www.doh.wa.gov/Portals/1/Documents/Pubs/334-098.pdf on March 22, 2015.

"High end, Native American consumers of in-river and marine Chinook salmon exceed a PCB HQ [Health Quotient] of 1. This includes estimates based on consumption rates of the Suquamish, Tulalip, and Squaxin Island Tribes. High-end API consumers and average recreational consumers also exceed a PCB HQ of 1. PCB hazard quotients from consumption of Puget Sound coho salmon are less than one for all consumers except high-end Suquamish consumers of coho from "marine" stocks….. Although average PCB levels in Puget Sound coho are below levels of concern, some individual station averages may be slightly above levels of concern, as evidenced by station-specific hazard quotients."[119]

Clearly tribal consumers have already been eating salmon from multiple species at levels above recommended exposure for several years, and chemical criteria must account for salmon in human health criteria.

2. Numerous studies document chemical update of persistent pollutants in fish. In particular, salmonids have been shown to accumulate toxic chemicals in freshwater, estuarine, and coastal marine areas of Washington.

a. Technical Support Document and Supplement
Versions 1 and 2 of Ecology's Technical Support Document on Fish Consumption Rates included references related to chemical contaminants in fish (see for example, Appendix H in Version 1). In response to public comments on the TSD Version 1, the WA Department of Ecology prepared a supplement document[120] to evaluate the inclusion of fish and shellfish in the default FCR, particularly salmon, and associated health benefits and risks of fish consumption. The supplemental information includes sections that are directly relevant to the discussion of the draft rule for Human Health Criteria as follows:

- Health Benefits and Risks of Consuming Fish and Shellfish
- Chemical Contaminants in Dietary Protein Sources
- Salmon Life History and Contaminant Body Burdens

[119] Washington Department of Health, Division of Environmental Health; October, 2006. Human Health Evaluation of Contaminants in Puget Sound Fish. DOH-334-104. Olympia, WA.

[120] Washington Department of Ecology, Toxics Cleanup Program; July 20, 2012. Supplemental Information to Support the Fish Consumption Rates Technical Support Document. Olympia, WA.

The supplement also cites numerous studies (hereby incorporated by reference) that document the uptake of toxic chemicals among salmon at various life stages in Washington freshwater, estuarine, and marine waters. In particular, studies by the WA Department of Fish and Wildlife document higher levels of persistent organic pollutants in Puget Sound resident Chinook compared to Chinook in other areas of the Pacific Northwest, indicating higher exposure in the inland waters of Puget Sound.[121] Ecology's overview description in the supplement (Section C, "Salmonid Body Burdens") has been confirmed as correct by the researcher from Washington Department of Fish and Wildlife.[122] Some commenters on the Technical Support Document (1.0) had stated that salmon pick up the body burden of toxic chemicals in marine waters, implying that they should be excluded from the fish consumption rate, without accounting for the fact that marine waters include estuarine and nearshore areas such as Puget Sound. A synopsis of the issue addressing the importance of including salmon in the Fish Consumption Rate is included in the blog article by C.A. O'Neill, 2012.[123]

b. Additional references

Documents and presentations prepared by NOAA/National Marine Fisheries Service, the WA Department of Ecology, WA Department of Health, WA Department of Fish and Wildlife, Environment Canada, and the Puget Sound Ambient Monitoring Program describe chemical contamination in a wide range of fish, shellfish, and marine mammal species in Washington freshwater, estuarine, nearshore and coastal waters including Puget Sound and the Columbia River basin (examples listed, more attached but not cited individually).[124], [125], [126]

---

[121] O'Neill, S.M. and J. E. West, 2009. Marine Distribution, Life History Traits, and the Accumulation of Polychlorinated Biphynols in Chinook Salmon from Puget Sound, WA. Transactions of the American Fisheries Society 138:616-632,2009. DOI: 10.1577/TO8-003.1

[122] West, James; March 9, 2015. Email re: Puget Sound toxic chemical uptake in salmon.

[123] O'Neill, C.A. (Puget) Sound Science. November 8, 2012. Center for Progressive Reform blog. http://progressivereform.org/CPRBlog.cfm?idBlog=E072AEC3-A728-A0BD-32965A41D8C66EBB

[124] West, James E. 2011. PCBs in Puget Sound's Food Web. Presentation to the Washington Department of Ecology Technical Fish Consumption Workshop on December 12, 2011 at the University of Washington, Seattle, WA. Accessed at: http://www.ecy.wa.gov/toxics/docs/20111212_fishworkshop_west.pdf http://www.ecy.wa.gov/toxics/fish_publicinvolvement.html

[125] O'Neill, S.M., G.M. Ylitalo, J.E. West, J. Bolton, C.A. Sloan and M.M. Krahn. April, 2006. Regional patterns of persistent organic pollutants in five Pacific salmon species (*Onchorhychus spp)* and their contribution to contamination levels in northern and southern resident killer whales *(Orcinus orca).* Extended abstract presented to the 2006 Southern Resident Killer Whale Symposium. Seattle, WA.

Some of these references are included in the Ecology supplement and others have been identified or are more recent. West's March 9, 2015 email also states that,

> *"Sandie reported at the 2014 Salish Sea Ecosystem Conference on a recent PSEMP study where we measured PBT burdens in juvenile Chinook salmon during their first year of life in Puget Sound in 2013. Results from this effort documented high exposures of outmigrating Chinook to PBTs in contaminated river mouths and nearshore habitats, and in Puget Sound marine waters."* [127]

Additional studies of pollutants in juvenile Chinook salmon in the Columbia River basin have also been published since the completion of the Technical Support Document supplement.[128]

3. Monitoring for toxic contaminants is an essential part of the implementation of state water quality standards under the Clean Water Act.

Monitoring is an essential tool in the implementation of the Clean Water Act to identify impaired waters, assess improvement or degradation, and identify differences in specific areas of Washington. In order to protect tribal communities and other high fish consumers from greater risk of exposure, additional monitoring, including fish tissue sampling and updated detection methodology, is needed for implementation. For example, Washington Departments of Fish and Wildlife and Ecology initiated an interagency agreement for fish tissue sampling of outmigrating juvenile Chinook salmon (initial findings cited above). The importance of monitoring activities is summarized in the statement in the introduction:

> *"Results from this work will be used to provide a measure of the effectiveness of current toxic reduction strategies and actions, inform*

---

[126] Presentations at the 2014 Toxics Reduction Conference; Seattle, WA. November 17, 2014.

[127] West, James; March 9, 2015. Email re: Puget Sound toxic chemical uptake in salmon.

[128] Johnson,L., B. Anulacion, M. Arkoosh, O.P. Olson, C. Sloan, S.Y. Sol, J. Spromberg, D.J. Teel, G. Yanagida and G. Ylitalo. 2013. Persistent organic pollutants in juvenile Chinook salmon in the Columbia River basin: Implications for stock recovery, transactions of the American Fisheries Society, 142:1, 21-40.

future pollution reduction efforts, and enhance recovery of Chinook Salmon." [129]

Tribes add that monitoring is also an essential component of the implementation of water quality standards to measure both performance and effectiveness.

[129] O'Neill, S., J.E. West, L.L. Johnson, J. Lanksbury, L. Niewolny and A. Carey. July, 2013. Quality Assurance Project Plan: Toxic contamination in outmigrating juvenile Chinook Salmon (*Oncorhyrchus tshawytscha*) from river mouths and nearshore saltwater habitats of Puget Sound. WDFW-Ecology Interagency Agreement #G1200486.

III. Cancer Risk Level

A. Maintain Washington's Cancer Risk Level at One-Per-Million.

Tribes repeat their request that the state of Washington maintain the cancer risk level used in the calculation of water quality criteria at a level of one-per-million (10^{-6}), retain the current water quality standard, WAC 173-201a-240(6), and resist political pressure to raise the cancer risk level as an offset for higher fish consumption rates. The proposed change to a risk level of one per 100,000 (10^{-5}) must be rejected for the following reasons:

- The proposed change fails to protect designated uses under the Federal Clean Water Act, which is the sole basis for authorization of standards.
- The change represents a change in policy previously advocated by the Department of Ecology without adequate justification, and due to industry intervention.
- Manipulating the cancer risk rate has a profound effect on the protective level of standards, to the detriment of highly exposed populations.
- The proposed change impedes tribal treaty-reserved rights to safely harvest and consume fish in the Pacific Northwest.
- An intentional increase in the cancer risk rate used to calculate human health criteria has a disproportionate impact to tribes and other highly exposed populations, in violation of environmental justice mandates.

Tribes, EPA, environmental and human health organizations have clearly requested, and advocated for maintaining a cancer risk rate of 10^{-6}, as necessary for the protection of human health and the designated uses of water in the Clean Water Act.

In numerous correspondences, Tribes,[130] EPA,[131] environmental and human health organizations[132], and the Department of Ecology[133] have advocated that 10^{-6} is an appropriate

[130] See section I.C and section I generally in this document correspondence to DOE imploring the state to maintain the current cancer risk rate.

[131] See Letter from Dennis McLerran, EPA Region 10 Regional Administrator to Senator Doug Eriksen. April 24, 2014. See Also Letter from Dennis McLerran, EPA Region 10 Regional Administrator to Senator Doug Eriksen. July 1, 2014

[132] See E.g. www.keepourseafoodclean.org; see also Letter from Nina Bell executie Director of NWEA to EPA Administrator McCarthy, re: Petition for Rulemaking on Water Quality Criteria for Toxics in the State of

maximum cancer risk level for use in developing Human Health Criteria (HHC) to ensure protection of designated uses.

The Department of Ecology has long held that the 10^{-6} is the appropriate maximum risk level to be used in the calculation of HHC.

Since at least 1991, Ecology has endorsed and maintained a risk level of 10^{-6}. Ecology's position on risk was formulated in the early 1990's, and expressed on the federal register during EPA's development of the National Toxics Rule (NTR). On December 18, 1991, in its official comments on the proposed rule, the Department of Ecology urged EPA to promulgate human health criteria at 10^{-6}. Specifically,

> *The State of Washington supports adoption of a risk level of one in one million for carcinogens. If EPA decides to promulgate a risk level below one in one million, the rule should specifically address the issue of multiple contaminants so as to better control overall site risks.* [134]

Shortly thereafter, Ecology proceeded to develop their own rules on risk level to ensure that the state's policy position would be codified in law. In 1992, Ecology adopted WAC 173-201A-240(6), which stated "Risk-based criteria for carcinogenic substances shall be selected such that the upper-bound excess cancer risk is less than or equal to one in one million.'' This position was later maintained in the 2010 triennial review.[135]

B. The Proposed Change Fails To Protect Designated Uses Under The Federal Clean Water Act, Which Is The Sole Basis For Authorization Of Standards.

1. The CWA sets a single threshold for standard setting – protection of the designated uses.

Washington, October 28, 2013; and Attached Petition for Rulemaking From NWEA to EPA submitted by Nina Bell, Executive Director, Northwest Environmental Advocates 28th of October, 2013.

[133] See 57 FR 60848

[134] id

[135] Ecology (2011) Washington Water Quality Standards 2010 Triennial Review Response to Comments, at page 17. Available at http://www.ecy.wa.gov/programs/wq/swqs/TriennialRevComm/triennialRevResponsetoCommTable082011.pdf

Section 303 of the Clean Water Act clearly states that water quality standards are established to protect the designated uses:

> *Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this chapter.*[136]

The goals of the CWA, to which water quality standards are ultimately designed to achieve, call for extensive water quality protection, including "…to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." [137] The Act further calls for dramatic action to meet these goals by eliminating pollution, including the discharge of pollutants into the navigable waters be eliminated by 1985; setting, whenever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983; and ensuring *that the discharge of toxic pollutants in toxic amounts be prohibited*.[138]

Nothing in the Act, including water quality standard setting, suggests that human health criteria or the determination the equations variables be based on political or economic concerns.

2. Protection of the designated uses must also pertain to protection tribal harvest and consumption.

Both Ecology and EPA agree that one of the designated uses at issue in the setting of HHC is the fishing use by tribes and other fishers. As EPA notes in their recent disapproval of Maine's HHC applied to "Indian Lands":

> *EPA concludes that to protect the function of these waters to preserve the Tribes' unique culture and to provide for the safe exercise of their*

[136] Section 1313(c)(2)(A)

[137] 33 USC **§** 1251(a)

[138] **§** 1251(a)(1)-(3)

sustenance practices, EPA must interpret the fishing use to include sustenance fishing.[139]

EPA indicated that the fishing use provides for both the safe harvest of treaty-reserved resources and preservation of cultural practices fundamental to tribal life. If HHC either do not protect both the right to safe harvest and the tribes that consume it, or interfere in any manner with those rights, then EPA has indicated that they have the authority, and by implication—the duty to disapprove the proposed standards.[140] For example, in EPA's recent disapproval of Maine's HHC as applied to Indian lands, EPA explained how the CWA provided the requisite authority to disapprove standards that did not protect tribal rights:

> *… if the State does submit a new or revised WQS that would* ***interfere*** *with the Tribes' reserved fishing right, EPA has authority under the CWA to ensure that the Tribes' fishing right is protected.* [141]

3. The Department of Ecology has not provided adequate justification to adopt a less protective cancer risk rate and has been influenced by political intervention.

Over the course of the last three years, industry has argued to the state of Washington that the cancer risk rate should be increased if the fish consumption rate was increased. Primarily, the industry-led debate has been centered on two basic presumptions. First, Washington should increase the cancer risk rate used in the calculation of human health criteria, because 15-year-old EPA guidance allows for it, and second the cost of NPDES compliance when using a more protective risk rate is prohibitive. Both industry and the state of Washington (in their explanation of rule decisions) lose sight of the larger context in which all water quality decisions, whether policy or technical in nature, must be made, i.e. a determination of whether

[139] Letter from Curtis Spalding EPA Regional Administrator to Patricia W.Aho, Commisioner February 2 2015 Appendix A , page 35.

[140] For additional information see letter from Hilary C. Tompkins, Solicitor Department of Interior to Avi S. Garbow, EPA Office of General Counsel re: Maine's WQS and Tribal Fishing Rights of Maine, January 30 2015.

[141] Id at page 12

water quality standards comply with the Clean Water Act and are protective of the designated uses. [142]

The Department of Ecology's Key Decisions document notes that increasing the cancer risk level is based on many factors, but notably fails to include among those factors protection of human health among high fish consuming populations or protection of treaty-reserved rights. In fact it seems to suggest quite the opposite – that the risk rate was predetermined by political interference and was not a product of well-reasoned rule process designed to meet CWA goals. Ecology rule decision document for risk rate acknowledges this flaw in both decision making processes:

> *Ecology is proposing to update the upper bound estimate of excess/additional lifetime cancer risk (the Risk Level; RL) value used in the equation from a one-in-one million additional lifetime risk of developing a cancer to one-in-one-hundred thousand, based on a* ***state-specific risk management announcement made by Governor Inslee.*** *This direction included considerations of engineering, social, economic and political concerns.* [143]

However, upon investigation of the considerations included in this final decision, we find that "political concerns" are the only one that point Washington in the direction of increasing the cancer risk rate.[144] As stated previously numerous social interests have gone on record supporting maintenance of current cancer risk rate as opposed to the Governor-led increase.[145] This suggests that social considerations were not

---

[142] see Catherine O'Neil, Seattle Univeristy Law School Comments to Idaho Department of Environmental Quality Risk, Human Health, and Water Quality Standards, 2015; See also Catherine A. O'Neill, *Fishable Waters*, 1 AMERICAN INDIAN LAW JOURNAL 181, 255-260 (2013)[hereinafter O'Neill, *Fishable Waters*], *available at* http://www.law.seattleu.edu/Documents/ailj/Spring%202013/O'Neill-Fishable%20Waters.pdf.

[143] Ecology (2014) Washington State Water Quality Standards: Human Health Criteria and Implementation Tools: Overview of Key Decisions. Emphasis added. Available at https://fortress.wa.gov/ecy/publications/publications/1410058.pdf

[144] See E.g. McClure & Henry, How Boeing, Allies Torpedoed State's Rule on Toxics Fish. April 23, 2013. Available at http://www.invw.org/article/how-boeing-allies-torpedo-1353; See also McClure Business Interests Trump Health Concerns in Fish Consumption Fight, March 23, 2013, available at http://www.invw.org/article/business-interests-trump-1344

[145] See e.g. Letter from Seattle Human Rights Coalition to Heather Bartlett, Comments on Determination of Significance and Scoping Notice for Revision to the Water Quality Standards for Surface Waters of the State of Washington , October 24, 2014;

ultimately weighted in deciding the outcome of risk. Additionally, Ecology's own cost benefit analysis demonstrates neither significant increase in cost associated with the rule or difficult engineering problems in near future.[146] For example the report states:

> *After reviewing, filtering, and assessing real cases of existing effluent data for dischargers using existing analytical methods and permitting practices, we conclude that while it is theoretically possible for existing facilities to be impacted by a change in criteria values, based on the reasonable potential determination and resulting from the proposed rule amendments, no such existing facility will be impacted, based on the analysis we conducted.* [147]

Ecology analysis also shows that many facilities are unlikely to trigger new permit limits, regardless of criteria levels, due in part to the operation of Reasonable Potential Analysis and other NPDES permitting processes.[148] In contrast to previous assertions in the media and directly from business and industry, Ecology's economic analysis demonstrates that there is little to be concerned over regarding economic impact, and further underscores that economic considerations are not a plausible reason to increase the cancer risk rate and alter a long held state policy and rule. Therefore, of the claimed interests purportedly considered, only those that are political point in the direction justifying the decision to adopt an increased cancer risk rate.

4. EPA guidance has been misrepresented to imply that it authorizes a change to the lower cancer risk level. EPA guidance does not authorize water quality standards that fail to protect designated uses, particularly for tribes.

As EPA has recently explained in their disapproval of Maine's HHC applied to Indian Lands, EPA's guidance does not address all situations that a state may face in order to ensure protection of tribes. In describing the need to protect tribal rights – including the right to fish – EPA explained that the "2000 Guidance does not directly speak to the unique situation EPA confronts in this action."[149]

---

[146] See Ecology (Janauary 2015) Preliminary Cost Benefit and Least-Burdensome Alternatives Analysis, Chapter 173-201A WAC Water Quality Standards for Surface Waters of the State of Washington. Publication no. 14-10-056, stating "likely qualitative and quantitative benefits of the rule exceed its likely costs." Page vii

[147] id at 41

[148] Id at 42

[149] EPA Letter to Maine Commissioners, 2015, Appendix A at page 35

Both the rule decision document and industry advocates, have argued that the governor's mandate to increase the cancer risk rate is justifiable, because EPA's year 2000 methodology for deriving ambient water quality criteria (AWQC guidance) allows states to set an increased cancer risk rate. Industry, and subsequently state positions interpret EPA's 2000 guidance as rote authorization of HHC if risk levels are set no higher than 10^{-4} for so-called sensitive subpopulations. However, nothing in EPA guidance explicates that Washington tribes are in fact "subpopulations, " or suggests that states have with unlimited discretion to minimize water quality standard protections for tribes. Therefore, it is overreaching to suggest that EPA guidance authorizes states to increase the cancer risk level for water quality standards which have been revised to better reflect consumption patterns of tribes and other high fish consumers.

Stated in full, the oft mis-cited paragraph in EPA guidance is as follows:

> *With AWQC derived for carcinogens based on a linear low-dose extrapolation, the Agency will publish recommended criteria values at a 10-6 risk level. States and authorized Tribes can always choose a more stringent risk level, such as 10-7. EPA also believes that criteria based on a 10-5 risk level are acceptable for the general population as long as States and authorized Tribes ensure that the risk to more highly exposed subgroups (sport fishers or subsistence fishers) does not exceed the 10-4 level.*[150]

What the AWQC does, which is further underscored in correspondence from EPA to Ecology and enumerated in the next section, is to require that states justify the setting of a cancer risk level, by in part ensuring the protection of highly exposed populations.

5. The CWA requires Ecology to analyze and justify changes in the cancer risk level

[150] U.S. Environmental Protection Agency, Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health 1-8 (2000)[hereinafter EPA, AWQC Guidance], *available at* http://water.epa.gov/scitech/swguidance/standards/upload/2005_05_06_criteria_humanhealth_method_complete.pdf

The federal implementing regulations for the CWA require Ecology to justify and analyze how new or revised water quality standards protect the designated uses, in this case including tribal treaty rights inherent to those uses.[151] EPA has explained in numerous correspondences to the state of Washington and Ecology that these federal requirements also include the need for Ecology to analyze and justify that modifications to the cancer risk level and how increasing risk will protect tribal treaty rights.[152] Starting in 1992, EPA has explained on the federal record the following requirements for changing cancer risk rates:

> *If a State selects a criterion that represents an upper bound risk level less protective than 1 in 100,000 (i.e., 10^{-5}), however, the State needed to have substantial support in the record for this level. This support focused on two distinct issues. First, the record must include documentation that the decision maker considered the public interest of the State in selecting the risk level, including documentation of public participation in the decision making process as required by the water quality standards regulation at 40 CFR 131.20(b). Second, the record must include an analysis showing that the risk level selected, when combined with other risk assessment variables, is a balanced and reasonable estimate of actual risk posed, based on the best and most representative information available.* ***The importance of the estimated actual risk increases as the degree of conservatism in the selected risk level diminishes.*** *EPA carefully evaluated all assumptions used by a State if the State chose to alter any one of the standard EPA assumption values.*[153]

It is important to highlight that first, EPA has stated that it would need to consider the rigor and representativeness of the *process* by which a state arrived at its risk level – particularly where the risk level selected was less protective than 1 in 1,000,000. Second, EPA has expressed concern for the *actual* risk posed to affected individuals, based on the best information available, when all of the parameters and circumstances were considered. Moreover, EPA highlights that increased scrutiny on actual risk must be applied when a state is proposing to increase the risk level from previous criteria.

---

[151] See 40 CFR 131.6 and 40 CFR 131.11

[152] See Letter from Dennis McLerran, EPA Region 10 Regional Administrator to Senator Doug Eriksen. July 1, 2014

[153] EPA, National Toxics Rule, 57 Fed Reg 60848-01 (1992) emphasis added

In the end, EPA's guidance cannot be taken to have endorsed the selection of a less protective risk level in Washington, where (1) the record shows that affected tribes, environmental and human health organizations have opposed the selection of a higher cancer risk level; (2) the data demonstrate that the increased risk of cancer would be visited on actual, identifiable people who eat large quantities of fish, harvested from the same local waters; and (3) the people whose intake of fish would be burdened with contamination in fact have rights to harvest and consume fish – rights protected by treaty and other sources of law; rights that cannot be abrogated via mere agency guidance.

C. *The Change Represents a Change in Policy Previously Advocated by the Department of Ecology Without Adequate Justification, and Due to Industry intervention*

1. Washington's decision to change the cancer risk rate was not based on protection of the designated uses, but instead based on industry intervention and a political influence.

As previously explained in section I. on Undue Delay, both the timeline for the development of Human Health Criteria and the substance of the rule have become highly politicized over the last three plus years.[154] Investigative reports have shown that business interests have interceded to promote gubernatorial influence on the development of rules by the Department of Ecology.[155] Industry and local government have specifically flagged maintaining the existing cancer risk rates as a serious issue.

> The Association of Washington Business, Local Governments such as Everett, and others have told Inslee that keeping the cancer-risk factor at its current rate is "unacceptable." [156]

[154] See also

[155] See E.g. McClure & Henry, How Boeing, Allies Torpedoed State's Rule on Toxics Fish. April 23, 2013. Available at http://www.invw.org/article/how-boeing-allies-torpedo-1353; See also McClure Business Interests Trump Health Concerns in Fish Consumption Fight, March 23, 2013, available at http://www.invw.org/article/business-interests-trump-1344

[156] Phoung Le, Seattle Times, State's appetite for fish stirs battle over industry, environment Originally published Monday, May 26, 2014 at 6:43 PM
http://seattletimes.com/html/localnews/2023703707_fishconsumptionxml.html

The decisions contained in the rule package, including the risk rate, reflect political interventions, which have taken place outside the confines of standard state or federal Administrative Procedure Act rulemaking, rather than constituting the product of agency expertise and consistent decision-making based upon the record of decision. During a political advisory group process established by the Governor, industry also intervened in an attempt to direct rule development toward consideration of hypothetical economic concerns.[157] By presenting worst-case economic scenarios, industry has exaggerated the potential cost of revised standards.[158] Since at least the 2010 triennial review, industries have requested that Ecology increase the cancer risk rate, and therefore modify current water quality standards. At that time, and consistent with previous assertions, Ecology stated that they had "no plans to revise" the cancer risk level previously supported and adopted by Washington.[159]

Ecology's Overview of Key Decisions document does not provide any analysis to demonstrate that they have fully considered the data in terms of actual risk to affected individuals, how it affects the most highly exposed populations, nor considered the legal, cultural or economic effect on treaty fisheries. . Instead, the Key Decisions document justifies the decision by highlighting that the risk level need only be based on "policy," and that the proposed rules will "apply the risk level of 10-5 to highly exposed populations…"[160] The apparent assumption in this statement is that a FCR of 175 g/day, to which the new higher cancer risk rate is applied, is adequately representative of "highly exposed populations." Unfortunately, as demonstrated in the FCR section of these comments, 175 g/day is not in fact representative of Pacific Northwest tribal consumption patterns. Raising the fish consumption rate is not a justification for increasing the cancer risk level.

---

[157] Presentation by HDR Engineering to the Governor's Informal Advisory Group, December 5, 2013 on behalf of businesses and municipalities.

[158] *Cf* Ecology (Janauary 2015) Preliminary Cost Benefit and Least-Burdensome Alternatives Analysis, Chapter 173-201A WAC Water Quality Standards for Surface Waters of the State of Washington. Publication no. 14-10-056, stating "likely qualitative and quantitative benefits of the rule exceed its likely costs."

[159] Ecology (2011) Washington Water Quality Standards 2010 Triennial Review Response to Comments, at page 17. Available at http://www.ecy.wa.gov/programs/wq/swqs/TriennialRevComm/triennialRevResponsetoCommTable082011.pdf

[160] Department of Ecology, Washington Water Quality Standards; Human Health Criteria and Implementation Tools: Overview of Key Decisions in Rule Development, September 2014, at page 20.

2. **Ecology has not analyzed whether proposed HHC actually protect designated uses (human health) for carcinogens, in part because they have not analyzed what level of risk is posed to human health as a result of additive and synergistic effects of toxics**

EPA requires the analysis and justification for changing the cancer risk level, and also places an increased burden on the state to justify those changes when they decrease the level of protection (increase the cancer risk level). In the Federal Register, EPA specifically noted that "the importance of the estimated actual risk increases as the degree of conservatism in the selected risk level diminishes."[161] Stated differently, analyzing and understanding actual risk should be emphasized when a state seeks to make the cancer risk level less protective. Part and parcel with an estimate of actual risk is assessment of both the additive and synergistic effects of the various toxic compounds on human health. However, Ecology has not provided such an analysis, despite ample research demonstrating the health effects (both carcinogenic and non-carcinogenic) of multiple toxin exposure.

Ecology's failure to assess additive toxicity is particularly ironic in light of Ecology's stated advocacy for the NTR value of 10^{-6} in 1991, cited in the Federal Register and quoted elsewhere in this section.

When multiple chemicals induce the same effect by similar modes of action, EPA guidance is to assume that the chemicals contribute additively to risk.[162] Evaluating cumulative risks from exposures to multiple chemicals "is especially important in cases where the resulting toxic effect from the mixture has been demonstrated to be greater than the sum of the individual effects".[163] EPA notes that "[c]ertain categories of contaminants, in particular, persistent organic pollutants that share a common mode of action and/or target tissue, are of elevated concern when they co-occur in the fish and drinking water."[164]

---

[161] 57 Fed Reg 60848-01 (1992)

[162] U.S. Environmental Protection Agency (EPA). 2000c *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, Technical Support Document Volume I: Risk Assessment*. Office of Water, Office of Science and Technology. EPA-822-B-00-005. October.

[163] Id

[164] Id

If criteria for carcinogens are based on a target risk level of 1×10^{-5} and an individual is exposed to multiple carcinogens at their criteria concentrations, the total cancer risk experienced by that individual will be greater than 1×10^{-5}. Cancer risks may be further increased for individuals who consume fish at a higher rate than assumed in the draft standards (175 grams/day), individuals with a lower body weight than assumed in the draft standards (80 kg), and for children or elderly consumers. These risks may be increased further still due to waterborne exposures to carcinogenic chemicals not addressed by the draft criteria, including chemicals in pharmaceuticals, flame retardants, and personal care products. Flame retardant chemicals known as PBDE's are included on Ecology's List of Persistent Bioaccumulative Toxics (the PBT List), some of which are considered possible human carcinogens, [165] although there are no state human health water quality criteria for these chemicals.[166] Diet is a major source of the PBDE body burden in humans, and fish have the highest PBDE levels among different types of food."[167]

As noted previously, Ecology commented on EPA's promulgation of human health criteria in the National Toxics Rule, stating that "[i]f EPA decides to promulgate a risk level below one in one million, the rule should specifically address the issue of multiple contaminants so as to better control overall site risks."[168] However, the issue of multiple contaminants, and the associated risk and health implications, is not addressed in Ecology's *Key Decisions Document.* By failing to take its own advice, Ecology is proposing human health criteria that fail to account for the additive and synergistic effects of exposures to multiple contaminants in Washington's waters.

D. *Manipulating the risk level has a profound effect on the protectiveness of the rule*

[165] Agency for Toxic Substances and Disease Registry (ATSDR). 2004. *Polybrominated Diphenyl Ethers (PBDEs) ToxFAQs*. September.

[166] Johnson, Art; Keith Seiders; Casey Deligeannis; Kristin Kinney; Patti Sandvik; Brandee Era-Miller; and Darren Alkire. 2006. *PBDE Flame Retardants in Washington Rivers and Lakes: Concentrations in Fish and Water, 2005-06*. Publication No. 06-03-027. Washington State Department of Ecology, Watershed Ecology Section, Environmental Assessment Program. August.

[167] Schecter et al., 2004, as cited in Johnson et al. 2006, supra

[168] 57 FR 60848

Although the change to the risk level affects different chemical criteria differently, it affects the overall protectiveness of the HHC in the direction of less stringent criteria, especially for carcinogens. As Ecology acknowledges:

> *Some variables make significant differences in the calculated values, while other variables make smaller changes. For instance, the additional lifetime cancer risk level for carcinogens can make a large difference in some criteria concentrations.* ***If the risk level increases, the criteria become less stringent.*** [169]

More specifically, elevating the cancer risk level from one in a million to one in a hundred thousand impacts the output of the numeric criteria by a multiplier of 10. The weight of cancer risk level, therefore, can have the effect of nullifying any increase to the protections gained by more accurately revising the FCR. So it is no surprise that tribes are concerned that that cancer risk level has been decidedly increased when the state has sought to rectify the inaccuracies of its FCR, which have been long acknowledged as needing revision.

1. Washington knowingly increased cancer risk level for the most vulnerable populations – high fish consuming populations and children.

Ecology's newly proposed HHC was heralded as a "paradigm shift," in that it proposed to move from protecting the general population to the high consuming population.

> *Since Washington has a strong tradition of fish and shellfish harvest and consumption from local waters, and within-state survey information indicates that different groups of people harvest fish both recreationally and for subsistence (Ecology, 2013), Ecology has made the* ***risk management decision to base the fish consumption rate used in the HHC equation on "highly exposed populations,"*** *which include, among other groups, the following: tribes, Asian Pacific Islanders, recreational and subsistence fishers, immigrant populations, etc*

What Ecology is impliedly stating here, and more explicitly stating in other historical documents,[170] is that the overall rule needs to be calculated to set criteria to ensure protection of tribes and other high fish consuming populations. However, after

[169] Ecology (2014) Overview of Key Decisions, page 12. Emphasis added

[170] See Ecology (2012) Focus on Toxics in Fish

acknowledging the historical misrepresentation of the FCR and the need to refocus the rule, Washington has also taken direct measures to minimize any protections that would have otherwise been gained by an increase in the FCR, by also increasing the cancer risk level.[171]

When the discussions of HHC development began, Ecology noted that it had "*no plans to propose a change to the risk level…"* [172] As the triennial review 5 year work plan laid out the approach was simply to work with "tribes, regulated industry, and stakeholders to begin the process to update human health criteria and establish an appropriate fish consumption rate (FCR) number for Washington." [173] It was not intended to revamp calculation of criteria in effort to minimize impacts of those adjustments. However, additional manipulation became necessary, as others starting raised concerns over the stringency of standards. [174]

Therefore, Washington's direct decision to increase the cancer risk level must be taken in context. Washington first decided that it needed to recalibrate the HHC by adopting a FCR that was more representative of the tribes and other high consuming populations. Second, after decidedly shifting the direction of the rule to ensure protection of higher consuming populations, Washington much later proposed to increase the cancer risk level. Put plainly, Washington proposed setting a new

---

[171] See NWIFC letters to EPA and Ecology on Risk levels

[172] Ecology (2011) Washington Water Quality Standards 2010 Triennial Review Response to Comments, at page 17. Available at http://www.ecy.wa.gov/programs/wq/swqs/TriennialRevComm/triennialRevResponsetoCommTable082011.pdf

[173] Ecology (2011) Surface Water Quality Standards Triennial Review Results—Five-Year Plan August 2011. Available at http://www.ecy.wa.gov/programs/wq/swqs/TriennialRevComm/5YRtrireviewPlanfinal082011.pdf

[174] See e.g. Gates, Dominic, *Inslee wants aerospace tax breaks extended if Boeing builds 777X here*, Originally published in the Seattle Times October 2, 2013, available at http://seattletimes.com/html/businesstechnology/2021950711_aerospacesummitxml.html

See also **Jerry Cornfield**, Everett Herald Writer, Boeing's opposition to fish study a sticking point in budget, *Published: Tuesday, June 25, 2013,* *h*ttp://www.heraldnet.com/article/20130625/NEWS01/706259904?utm_source=E-clips&utm_campaign=14848fd5d0-E_clips_June_26_20136_26_2013&utm_medium=email&utm_term=0_c909fc207a-14848fd5d0-388498357#Budget-snags-on-fish-study

.

cancer risk level in an effort to assuage industry concerns and dampen the effect of recalibrating the rule to protect tribes and others.

2. Washington's increase in the cancer risk level has resulted in no change to many of the standards for carcinogens

To demonstrate the nullifying impact of decidedly increasing the cancer risk level for a rule designed to protect higher consuming populations, we provide the following table. The table shows that a majority of carcinogenic criteria would in fact decrease in their level of protection, had not the governor imposed a "policy overlay" that kept less protective criteria at the status quo level of the 1992 NTR. As a result, a striking thirty-six out of forty-eight criteria for freshwater carcinogens remain the same. However, the intent of revising the FCR was to ensure that higher consuming populations were more protected – not to conduct years of administrative process only to propose no substantive change in a majority of the carcinogenic standards.

Comparison of Ecology's Proposed HHC with the NTR.[175] Numbers represent the number of criteria.

	Freshwater carcinogens	*Freshwater non-carcinogens*	*Marine Carcinogens*	*Marine Non-Carcinogens*
Increase in protectiveness	*11*	*25*	*43*	*29*
Remain the same	*36*	*11*	*3*	*7*
Decrease	*1*	*NA*	*1*	*NA*
Newly regulated chemicals to be calculated using 10^{-5}	*2*	*10*	*2*	*9*

E. *Intentionally Increasing the Cancer Risk Rate Impedes Tribes' Treaty-Reserved Rights, and Ignores Washington's Obligations to Protect the Treaty-Reserved Resources.*

Each of the Tribes is party to one or more treaties with the United States securing the fishing rights that they have exercised since time immemorial.[176] The treaties reserve the Tribes' aboriginal rights to take fish throughout their fishing areas in exchange for the Tribes' cessions

[175] Based on Ecology's Draft – Washington Human Health Criteria Review Documents Revised 8/8/2014 available at http://www.ecy.wa.gov/programs/wq/swqs/WAHHCrevdocs080714.pdf

[176] *See, e.g,* Treaty of Medicine Creek, 10 Stat. 1132-37, December 26, 1854, proclaimed April 10, 1855; Treaty of Point Elliott, 12 Stat. 927-32, January 22, 1855; proclaimed April 11, 1859; Treaty of Point No Point, 12 Stat. 933-37, January 26, 1855, proclaimed April 29, 1859; Treaty of Makah, 12 Stat. 939-43, January 31, 1855, proclaimed April 18, 1859; Treaty of Yakama, 12 Stat. 951-56; June 9, 1855; proclaimed April 18, 1859; Treaty of Olympia, 12 Stat. 971-74, July 1, 1855 and January 25, 1856; proclaimed April 11, 1859.

of vast portions of what is now the United States.[177] With respect to each of the Tribes, it is no exaggeration to say that they "viewed a guarantee of permanent fishing rights as an absolute predicate to entering into a treaty."[178] The fishing rights they secured by treaty are the supreme law of the land, and have been consistently and expansively enforced by the federal courts.

Each of the Tribes entered into solemn treaties with the United States securing their rights to take fish as they had since time immemorial. A century's worth of federal court decisions has established beyond dispute that these treaty fishing rights are permanent in nature, and that they secure for the Tribes the right to take all species of fish found throughout their reserved fishing areas for subsistence, ceremonial and commercial purposes. Tribal treaties are the supreme law of the land, and federal agencies including EPA are required to consider and comply with them in making regulatory decisions that could affect the rights secured.

When it entered into treaties with the Tribes, the United States bound itself by its word and the force of law to permanently protect the Tribes' right to take fish.[179] At treaty times, "fish was the great staple of [Indians'] diet and livelihood,"[180] and fishing rights "were not much less necessary to the existence of the Indians than the atmosphere they breathed."[181] Thus, "the Indians viewed a guarantee of permanent fishing rights as an absolute predicate to entering into a treaty,"[182] and in providing those guarantees "[i]t never could have been the intention of Congress that Indians should be excluded from their ancient fisheries . . .. "[183]

While the precise language of the fishing rights provisions varies among treaties, federal courts have interpreted those provisions commensurately, as securing for the Tribes permanent, enforceable rights to take fish throughout their fishing areas for subsistence and commercial

---

177 *See, e.g., United States v. Washington citation; Minnesota* v. *Mille Lacs Band a/Chippewa Indians,* 526 U.S. 172,200 (1999) (upholding continued vitality of Mille Lacs Band's treaty fishing rights secured under 1837 and 1842 treaties with the Chippewa).

178 *United States* v. *Washington,* 873 F. Supp. 1422,1437 (W.D. Wash. 1994), *rev'd in part on other grounds,* 135 F.3d 618, *as amended* 157 F.3d 630 (9th Cir. 1998).

179 *See, e.g,* Treaty of Point Elliott, 12 Stat. 927, Art. 5 ("The right of taking fish at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the Territory .... "); *see also* Treaty of Point No Point, 12 Stat. 933, Art. 4; Treaty of Medicine Creek, 10 Stat 1132, Art. 3.

180 *Fishing Vessel,* 443 U.S. at 665 n.6 (citations and internal quotation marks omitted).

181 *United States* v. *Winans,* 198 U.S. 371, 381 (1905); *United States* v. *Michigan ("Michigan f'),* 471 F. Supp. 192,213,224,256-57 (W.D. Mich. 1979), *aff'd as modified,* 653 F.2d 277 (6th Cir. 1981).

182 *Washington,* 873 F. Supp. at 1437 (W.D. Wash. 1994).

183 *Fishing Vessel,* 443 U.S. at 666-67 n.9, 700 (citation and internal quotation marks omitted).

purposes.[184] Given the tremendous importance of the fisheries to the treating tribes and the Tribes' insistence that they be able to maintain their reliance on those fisheries, the courts have construed the fishing rights expansively, consistently rejecting interpretations that would reduce those rights to a mere assurance that tribal members can fish on equal footing with other citizens.[185]

The treaty fishing rights encompass the right to fish in all areas traditionally available to the tribes.[186] The treaties have been held to guarantee tribes the right to fish for ceremonial, subsistence, and commercial purposes, with the prioritization of those purposes left to the relevant tribal government.[187] Moreover, courts have elucidated the extent of the right, repeatedly holding that it includes the right to a fifty percent allocation of the fishery as necessary to provide the tribes with a moderate living.[188] "[T]reaties ... [are] binding ...

---

184 *See, e.g., Fishing Vessel,* 443 U.S. at 678-79; *Lac Courte DreWes Band of Lake Superior Chippewa Indians* v. *Wisconsin ("Lac Courte DreWes IIF"),* 653 F. Supp. 1420, 1430 (W.D. Wisc. *1987); Michigan I,* 471 F. Supp. at 213, 224, 257-260 (W.D. Mich. 1979

185 *Winans,* 198 U.S. at 380; *see also Fishing Vessel,* 443 U.S. at 666-80.

186 *Muckleshoot* v. *Hall,* 698 F. Supp 1504, 1513-14 (W.D. Wash. 1988); *see also United States* v. *Oregon,* 718 F.2d 299,305 (9th Cir. 1983) (holding that "the court must accord primacy to the geographical aspect of the treaty rights"); *Confederated Tribes of the Umatilla Indian Reservation* v. *Alexander,* 440 F. Supp. 553, 555-56 (D. Or. 1977) (declaring proposed - construction of a federal dam to be unlawful where the dam would have inundated traditional fishing areas of the Umatilla TribeSuch areas may even include those outside of ceded territories. *See Seufert Bros. Co.* v. United States, 249 U.S. 194, 198-99 (1919).

187 *E.g., United States* v. *Washington,* 459 F. Supp. 1020, 1092 (W.D. Wash. 1978); *accord Fishing Vessel,* 443 U.S. at 688 (holding that fish taken for all three purposes is part of the treaty share "as long as there is enough fish to satisfy the Indians' ceremonial and subsistence needs").

188 *Fishing Vessel,* 443 U.S. at *685-87; see also Lac Courte OreWes IIL* 653 F. Supp. at 1432 (recognizing tribal treaty right to a moderate living). The dicta in *Swinomish Indian Tribal Community* v. *FERC,* 627 F.2d 499, 507 (D.C. Cir. 1980) stating that the treaties do not guarantee the tribes "any constant quantity of fish" is reconcilable with these holdings because the right to a moderate living based on an allocation of up to 50% as necessary to obtain that moderate living does not specify a quantity of fish. (In other words, factors such as natural fluctuations in the fishery or market changes may affect the quantity available to or necessary to satisfy the moderate living right.) However, the dicta in that decision suggesting that the treaty fishing right merely accords tribes equal access to fishing grounds is contradicted by the Supreme Court's holdings in *Winans,* 198 U.S. at 381-82, and *Fishing Vessel,* 443 U.S. at 676-77 & n.22. In *Fishing Vessel,* the Court noted that the concept "[t]hat each individual Indian would share [merely] an equal opportunity with thousands of newly arrived individual settlers is totally foreign to the spirit of the negotiations. Such a right, along with the $207,500 paid the Indians, would hardly have been sufficient to compensate them for the millions of acres they ceded to the Territory." 443 U.S. at 676-77 (internal quotation marks and footnote omitted). Accordingly, the *Swinomish* Court's deduction that the treaty fishing right does not protect river flows proceeds from an incorrect premise and is therefore erroneous. *See, e.g., United States* v. *Adair,* 723 F.2d 1394, 1415 (9th Cir. 1983) (holding that tribe was entitled to reservation of water sufficient to protect their treaty-protected hunting and fishing rights); *see also Winters* v. *United States,* 207 U.S. 564 (1908) (holding that treaty-created reservation implicitly included reservation of water to make land arable).

throughout the ... United States,"[189] and, accordingly, states, and federal agencies including EPA, must take the Tribes' treaty rights into account when pursuing a course of action that may affect those rights.

The treaty right also includes duties on the part of the State and non-Indians with regard to fish habitat. In *United States v. Washington*,[190] for example, the court found that the Treaties impose a duty upon the State "to refrain from building or maintaining culverts . . ." that block fish passage and thereby diminish the number of fish[191] that would otherwise be available for Tribal harvest.[192] In *United States v. Adair*, the court held that the treaty fishing rights of the Klamath Tribe in Oregon imply a right to have sufficient water left in the streams to support tribal fisheries

These duties have been recognized because they are essential to fulfill the treaties' purpose to "protect that source of food and commerce [which] were crucial in obtaining the Indians' assent."[193] It was the United States' intent, "and the Tribes' understanding, that they would be able to meet their own subsistence needs forever . ."[194] "I want that you shall not have simply food and drink now but that you may have them forever."[195] "It was thus the right to take fish, not just the right to fish, that was secured by the treaties."[196]

Collectively, these cases stand for the fundamental proposition that the Tribes' fishing rights include the rights necessary to render the treaty promises meaningful to the fishers who continue to rely on them to feed their families and communities and to secure a moderate living.

Washington's proposal to increase the cancer risk level for rules, which were intended to attune standards to better protect higher consuming populations such as tribes, impedes their reserved rights by thwarting the increase in protections sought by revising the FCR and more accurately calibrating the HHC. The protections afforded by stringent and accurate HHC development should directly protect tribes that consume fish, and also support continued marketability of an important commercial food source, valued for its culinary, nutrition, and

---

189 *Missouri* v. *Holland,* 252 U.S. 416, 434 (1920) (citations and internal quotation marks omitted).

190 *United States v. Washington, 01-1, Culverts*, Summary Judgment Decision (SJ Order), August 2007.

191 It is not necessary for the Tribes to exactly quantify the numbers of 'missing' fish to proceed in this manner." Order on Cross-Motions for Summary Judgment at 5 (emphasis added).

192 SJ Order at 12.

193 SJ Order at 9, citing State of Washington, et al., v. Washington State Commercial Passenger Fishing Vessel Association, et al., 443 U.S. 658 (1979) (emphasis added by Judge Martinez)

194 SJ Order at 10.

195 SJ Order at 10, citing Decl. of Richard White, DKT. #296, ¶¶13, 14,which quotes Governor Stevens (emphasis added by Judge Martinez).

196 SJ Order at 10.

health properties. However, the decision to increase the risk level, not only maintains many carcinogen standards at a level already determined to be under-protective of tribes[197], but does so based on no analysis other than attempts to maintain political balance (see earlier discussion). This intentional dampening of the protectiveness of the water quality standards, therefore, not only suppresses the protections against exposure to toxic, carcinogenic substances, and but also threatens the commercial viability of the food sources that are also exposure pathways. This double threat of prevented health protections form eating fish, and continued endangerment to the commercial viability of the seafood harvest, directly and adversely effects the tribes' rights to safely consume and trade those natural resources reserved by treaty.

Nothing is more fundamental of the right of taking fish than the ability to safely consuming the fish. Therefore, Washington should maintain the existing cancer risk level, while adjusting the FCR to ensure that the HHC provide for water quality that protect continued safe and marketable harvest of treaty-reserved resources.

F. Intentionally Increasing the Cancer Risk Rate, when the Intended Purpose of the Rule Revision is to Protect Highly Exposed Populations, Violates Environmental Justices Laws, Mandates, and Principles[198]

As previously discussed, the decision to increase the cancer risk is not a decision that can or should be considered in isolation or out of legal contexts. So far we have discussed how setting the cancer risk level should be considered in both the context of the CWA and treaty rights. Additionally, the setting of the cancer risk level should also be considered within the context of compliance with environmental justice laws, principles, and mandates.

1. Environmental justice mandates are a charge to address the disparate impacts tribes face from the contamination of their first foods and treaty-reserved resources

---

[197] See EPA comments to Ecology on 2010 triennial review, and subsequent correspondences from EPA to Washington in last three consecutive years urging Ecology to revise FCRs while maintaining the risk level.

[198] Additional information, useful for this discussion , and hereby incorporated by reference is as follows: NATIONAL ENVIRONMENTAL JUSTICE ADVISORY COUNCIL, FISH CONSUMPTION AND ENVIRONMENTAL JUSTICE 43-45 (2002).

O'Neill, C.A. 2013. Fishable Waters. American Indian Law Journal Vol 1, Issue 2

The primary charge of environmental justices mandates is simply to avoid disparate harm to specific populations, who are often overly exposed to pollution due in part to their geographic locations or cultural practices. In the case of tribes, their cultural, spiritual, economic and sustenance practices create opportunity for greater exposure to toxic chemicals that are discharged to water and subsequently reside in tissues that are later consumed. Tribes face these greater exposures for two basic reasons. First, tribal lifeways - the collection of shellfish and harvest of fin fish – place a major emphasis on the consumption of local fisheries resources. It is important to note, that this is not a mere choice or individual lifestyle, but in fact a long standing cultural expression backed by constitutional protections. Second, under-regulation and under-implementation of existing laws, have created the conditions whereby toxics freely enter aquatic environments and subsequently those foods sources that the tribe rely upon.

Environmental justice mandates were developed with the sole purpose of preventing exactly this type of disparate impacts and manifestations in communities that are often underequipped to handle already difficult problems. For example, Title VI of the 1964 Civil Rights Act prohibits discrimination based on race, color, or national origin under any program or activity of a recipient of federal financial assistance.[199] Under Section 601 of Title VI:

> *No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.*[200]

The breadth of title VI includes those federal programs delegated to states, such as the CWA. When CWA programs, like the HHC, are developed and implemented completely and accurately they are fundamental to protecting overly exposed communities.

Executive Order 12898 directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The authorities delegated by EPA to Ecology, including the

199 42 U.S.C. §§ 2000d to 2000d-7.

200 42 U.S.C. § 2000d.

development (and approval) of human health criteria, fall squarely within the scope of this order, and therefore should receive additional attention as to how they can better be aligned with EO's overarching goals. [201]

Further, EPA's plan for implementing environmental justice mandates prove highly informative, as it is clear EPA rules, and presumably the review and approval of those rules developed through delegation, are intended to address issues of environmental justice.

> *Plan EJ 2014 calls upon EPA to develop and implement guidance to incorporate environmental justice into the fabric of its rulemaking process. EPA's authority to create and enforce regulations that put our nation's environmental laws into effect is one of the Agency's most important and powerful tools for protecting our environment and the health of our people.*[202]

2. Ecology's claim that exposure to unequal risk is a de facto result of HHC calculations is misleading, and should not be used to avoid analysis of disparate impacts

Ecology has argued that inherent in the calculation of HHC is an assumption that those that eat more fish will always be exposed to greater risk.

> *It should be noted that it is not possible to assume that an equal amount of risk will be realized by the entire population of a state. All other factors being equal, people and groups who consume more fish and shellfish are inherently at greater risk from those contaminants than those who do not (given that contaminants are present in these items and that equal concentrations of contaminants are present in the consumed items). Regardless of the specific fish consumption rate used in the criteria calculations, or the final water quality criteria that are applied to waters, unequal risk among groups and individuals will always exist because of differences in fish consumption habits. This difference would exist even if criteria were not present. Therefore it is not reasonable to assume that a*

[201] 59 Fed Reg 7629, February 16, 1994; see also EO 12898

[202] EPA (2014) Plan EJ 2014, available at http://www.epa.gov/environmentaljustice/resources/policy/plan-ej-2014/plan-ej-overview.pdf

given risk level chosen by a state reflects actual risk across all populations or among all individuals in the entire state. [203]

Ecology's effort to point out variability in risk, however, is not an adequate justification to avoid the systematic EJ review of policy decisions, which thwart increases in the protectiveness of standards for high fish consuming populations. The statement only serves to misdirect the conversation – away from the direct decision of policy makers to increase cancer risk levels for high consuming populations, and toward the notion that such an action is justified by inherent variability of risk management. Instead, the focus need not be on variability, but on the simple following fact. When Washington changed the scope of the HHC to more directly cover high fish consumers and tribes, they decidedly eradicated long standing risk policy, in favor of selecting a greater cancer risk level. This *action*, effectively assigned a higher cancer risk level to tribes and demonstrated an unwillingness on behalf of Washington to carry forward a policy that it was previously comfortable with assigning to the "general population." The result of which, prevented the application of more protective water quality standards, which would, as Ecology's Cost Benefit document supports, help prevent additional toxic contamination leading to the disparate impacts realized by tribes.[204] Therefore, the act of removing WAC 173-201A-240(6), because the HHC now apply to tribes and high fish consumers, is what needs review and consideration under EJ principles.

Ecology's own statements further support the charge that the HHC policy decisions need to be reviewed against environmental justice principles by their admission that " groups who consume more fish and shellfish *are inherently at greater risk* from those contaminants than those who do not."[205] This statement essentially acknowledges that tribes, by the nature of their constitutionally protected cultural expression are in fact exposed to a disparate impact of toxics sequestered in their first foods, i.e. the "inherent risk". However, under environmental justice principles, it is the duty of state and federal agencies to utilize their authorities to minimize the inherent risk and ultimate effects tribal communities face. Increasing the cancer risk rate for a rule calibrated to better protect tribes is not consistent with those principles.

---

[203] Ecology(2014) Overview of Key Decisions at page 17

[204] See Ecology (Janauary 2015) Preliminary Cost Benefit and Least-Burdensome Alternatives Analysis, Chapter 173-201A WAC Water Quality Standards for Surface Waters of the State of Washington.

[205] Ecology (2014) supra at 17

IV. Body Weight

Ecology's change in the Body Weight value from 70 kg to 80 kg lacks justification, and places women and children at higher risk of exposure to toxic contaminants.

The Washington Department of Ecology has proposed to change the Body Weight variable used in the calculation of human health criteria from the existing value of 70 kg (154 lbs) to 80 kg (176 lbs). In light of Ecology's other decisions in the human health criteria, Ecology has not provided a consistent rationale or adequate justification for the change from 80 to 70 kg, and the value of 70 kg should be retained for the body weight criterion.

A. Inappropriate and inconsistent use of EPA recommendations.

Ecology's decision to use 80 kg based on revised criteria from EPA is inconsistent with other decisions not to use newer EPA recommendations. Of all the proposed changes to EPA national 304(a) default criteria that were issued in 2014, the revised body weight is the only variable that Ecology proposes to utilize. Not coincidentally, it is also the only selected variable that would result in less stringent discharge limits for permittees.

Citing the 2011 EPA Exposure Factors Handbook, Ecology's Key Decisions document reports that, "EPA recommends 80 kg for average adult body weight." However, the 2011 EPA Exposure Factors Handbook (Chapter 8) [206] states that,

> *The mean recommended value for adults (80 kg) is different from the 70 kg commonly assumed in U.S. EPA risk assessments. Assessors are encouraged to use values that most accurately reflect the exposed population. When using values other than 70 kg, however, the assessors should consider if the dose estimate will be used to estimate risk by combining it with a dose-response relationship that was derived assuming a body weight of 70 kg.*

Earlier analysis of fish consumption data in Washington was based on an assumption of 70 kg as a default body weight. Citing studies of fish consumption in tribal and Asian/Pacific Islander communities, Ecology et al. (1999) recommended a default FCR of 175 g/day but

[206] US EPA Exposure Factors Handbook. September 2011. Chapter 8.

stated specifically that this assumed a body weight of 70 kg and would need to be re-evaluated if the assumptions were changed.[207]

Ecology has opted to consider tribes as an exposed population in consideration of documented high levels of fish consumption and other factors, but Ecology must also consider the impact of changes in the standards to other high fish-consuming populations, including Asian and Pacific Islander communities. A study of fish consumption in the A/PI community in King County indicated an average body weight of 62 kg for men and women.[208] One of the authors, Lorenzana, has indicated in presentations that the 80 kg figure significantly overestimates bodyweight for Washington's A/PI population, for whom the average body weight for women is just 57 kg.

B. Ecology should consider additional data to re-evaluate the decision to raise the body weight assumptions in Washington.

1. The use of a body weight value of 80 kg may under-report exposure to women and children, and high fish consuming populations.

a. The EPA exposure factors handbook 2011 reports body weight by age group, gender, and race (white, black and Mexican-American only), but not by state. Other data from the Centers for Disease Control indicates that Washington State is below the national median for the percentage of obesity by state, based on Body Mass Index. Public Health organizations, such as the Centers for Disease Control, utilize BMI as a measure of weight to height ratio as a health risk indicator, rather than body weight alone. The CDC indicates that Washington State ranks 20th out of 51 (states and DC) in lowest percentage of obesity.[209]

---

[207] Washington State Department of Ecology, 1999. Draft analysis and selection of fish consumption rates for risk assessments and risk-based standards. Ecology Pub. 99-200. L. Kiell and L. Kissinger and an interagency Risk Assessment Forum. https://fortress.wa.gov/ecy/publications/publications/99200.pdf

[208] Sechena, R., C.Nakano, S.Liao, N.Polissar, R.Lorenzana, S.Truong, and R.Fenske. "Asian and Pacific Islander Seafood Consumption Study in King County, Washington." EPA 910/R-99-003. May 1999.

http://www.epa.gov/region10/pdf/asian_pacific_islander_seafood_consumption_1999.pdf

[209] CDC Behavioral Risk Factor Surveillance System (BRFSS). Sortable Risk Factors and Health Indicators. Health Burden: Adult Obesity (2012) http://wwwn.cdc.gov/sortablestats/

Other data from CDC Behavioral Risk Factor Surveillance System indicates that obesity rates in the United States appear to be leveling off.[210]

b. The EPA exposure handbook states that the mean and median body weight for children age 1-14 is 29.9 and 24.9 kg, respectively.

c. Tsuchiya and others conducted a dietary survey assessing fish consumption of Japanese and Korean women, and found similar body weight results from the King County study of the Asian and Pacific Islander community for women (57 kg). The mean weight of the participants in the Tsuchiya et al. study was 55 kg for the Japanese women and 59 kg for the Korean women.[211]

2. Tribal studies indicate differences in body weight between male and female respondents, and higher fish consumption (per body weight) among children.

Citations of tribal values as local data may also under-report body weight for women and children. Ecology's Key Decisions document cites the EPA CERCLA handbook for toxic cleanup sites to report local data on average body weight from the tribal studies, specifically the mean of 81.8 kg for Tulalip and 79 for Suquamish. The mean body weight for women in the Tulalip study was 68 kg and women represented 42% of respondents. (Tulalip study cited in Key Decisions document)

Ecology did not cite the study of the Squaxin Island Tribe, conducted at the same time as the Tulalip study and reanalyzed in 2013 for fish consumers, which provides an example of the relationship between body weight and other criteria. The mean weight for Squaxin Island adult females in the study was also 68 kg, as was Tulalip. The 95th percentile for the adult fish consumption rate was 3.42g/kg-day. Using the average weight for females of 68 kg, the fish consumption rate would be 233 g/day. The Squaxin Island study also found that children consumed fish at a rate approximately three times higher, in g/kg-day, than adults. (cited in FCR section)

[210] LA Times Science Now Report. September 14, 2014. "US obesity crisis may be stabilizing, especially in kids." http://www.latimes.com/science/sciencenow/la-sci-sn-american-obesity-crisis-stabilizing-20140904-story.html

[211] Tsuchiya, Hardy, Burbacher, Faustman and Marien, 2008. Fish intake guidelines: incorporating n-3 fatty acid intake and contaminant exposure in the Korean and Japanese communities. Am Jrnl Clinical Nutrition 2008;87: 1867-75. American Society for Nutrition. http://ajcn.nutrition.org/content/87/6/1867.long

Data indicating levels of Type 2 diabetes and obesity at levels substantially higher than national rates have prompted tribal communities to emphasize a return to "First Foods," i.e., traditional sources of food such as fish and shellfish in the Pacific Northwest. The CDC has encouraged programs promoting nutrition and health in tribal communities, noting that, "American Indians and Alaska Native communities are reclaiming traditional foods as part of the global Indigeneous food sovereignty movement that embraces identity, history, and traditional ways and practices to address health." [212]

3. The change in the body mass index does not consider additional chemical concentration effects from the affinity of contaminants to fat tissue.

Tribes have commented that the recent proposal from EPA to increase the national criterion for human body mass from 70kg to 80 kg will have a harmful effect on potential exposure scenarios. Persistent Organic Pollutants (POPs) have serious deleterious effects in the human body at very low levels. Most of these chemicals are lipophilic (fat soluble) and many are hydrophobic (water repellant) which increases their affinity to fat molecules.

[212] Centers for Disease Control and Prevention, 2015. Traditional Foods Project. http://www.cdc.gov/diabetes/projects/ndwp/traditional-foods.htmhttp://www.cdc.gov/diabetes/projects/ndwp/traditional-foods.htm

V. Drinking Water Intake

A. Ecology Must Use EPAs Updated National Recommendations For Drinking Water Intake In The Calculation Of Human Health Criteria.

Department of Ecology should utilize updated variables for drinking water intake to reflect EPAs most current recent recommendations embodied in their updated national recommended criteria.[213]

> EPA has updated the default drinking water intake rate assumption to 3 liters per day based on NHANES data from 2003 to 2006 for all sources of water at the 90th percentile for adults ages 21 and older. This value is based on consumer-only estimates of direct and indirect water ingestion. EPA previously recommended a default drinking water intake rate of 2 liters per day, which represented the 86th percentile for adults surveyed in the US Department of Agriculture's 1994-1996 Continuing Survey of Food Intake by Individuals (CSFII) analysis and the 88th percentile of adults in the National Cancer Institute study of the 1977-1978 Nationwide Food Consumption Survey. [214]

These recommendations represent the current best available science, and reflect EPA's most current information on drinking water intake. They also more appropriately utilize the 90th percentile to ensure better protection and a greater margin of safety for highly those exposed.

[213] See 79 Fed. Reg 27303 Available at http://www.gpo.gov/fdsys/pkg/FR-2014-05-13/pdf/2014-10963.pdf

[214] EPA. May 2014. Human Health Ambient Water Quality Criteria: Draft 2014 Update. Available at http://water.epa.gov/scitech/swguidance/standards/criteria/current/upload/Human-Health-Ambient-Water-Quality-Criteria-Draft-2014-Update-Factsheet.pdf

VI. Bioaccumulation Factors

A. Consistent With EPA's Updated 304(A) National Recommendations, Ecology Should Utilize Bioaccumulation Factors To More Accurately Represent The Presence of Toxics in Tissue

In order to prevent harmful exposures to waterborne chemicals through the consumption of contaminated fish and shellfish, water quality criteria for the protection of human health "must address the process of chemical bioaccumulation in aquatic organisms"[215]. Accordingly, EPA's *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* recommends "the use of a bioaccumulation factor (BAF) to reflect the uptake of a contaminant from all sources (e.g., ingestion, sediment) by fish and shellfish, rather than just from the water column as reflected by the use of a bioconcentration factor (BCF)."[216]

The use of a BAF better represents the amount of a contaminant accumulating in an organism because it accounts not only for the organism's exposure to the pollutant in the water column, but also from the food chain and surrounding environment, as well as biotransformation of the pollutant in the organism due to metabolic processes.[217]For some chemicals (particularly those that are highly persistent and hydrophobic), the magnitude of bioaccumulation by aquatic organisms can be substantially greater than the magnitude of bioconcentration. Thus, an assessment of bioconcentration alone would underestimate the extent of accumulation in aquatic biota for these chemicals.[218]

To calculate the criteria in its draft rule, Ecology has proposed to continue to use BCFs. Ecology has based their decision on rationale similar to that used for other parameters, including the relative source contribution (RSC), citing the "limited ability of the Clean Water Act to control sources outside its jurisdiction." However, adopting human health criteria that are adequately

---

[215] U.S. Environmental Protection Agency (EPA). 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*. Office of Water, Office of Science and Technology. EPA-822-B-00-004. October.

[216] Id

[217] U.S. Environmental Protection Agency (EPA). 2014a. *Draft Update of Human Health Ambient Water Quality Criteria: Benzo(a)Pyrene*. EPA 820-D-14-012. Office of Water, Office Science and Technology. May.

[218] EPA. 2000. Supra

protective is critical in minimizing health risks to fish consumers through the NPDES permitting process, through the water quality certification process, for the identification of impaired waters, and for the development of total maximum daily loads for impaired waters, all of which are within the state's Clean Water Act jurisdiction. Moreover, nothing in the CWA, suggests that programs other than § 402 permitting should be limited due to the nature of the sources pollution.[219] Ecology's CWA duty, in accordance with § 303, is instead to focus on establishing criteria, which are based on best available science and protect the designated uses. To accomplish this task, Ecology must consider whether their approaches accurately account for toxic exposures, including the degree to which toxics are present in organisms due to bioaccumulative uptake.

As Ecology has acknowledged in their *Overview of Key Decisions*, the BCF values used to calculate the State's draft criteria "are in many cases older values (developed in the late 1970's), and in many cases are based on laboratory testing of only one species".[220] While EPA has only recently published bioaccumulation factors for most of the priority pollutants as part of its 2014 *Draft Update of Human Health Ambient Water Quality Criteria* ,[221] EPA guidance has recommended the development and use of BAFs since 2000, when the agency last updated its Human Health Methodology.

For many persistent bioaccumulative chemicals, the BAF values published by EPA[222] are significantly higher than the previously used BCF values because they also take into account accumulation in fish and shellfish through the food chain. Because the BCF values used by Ecology are included in the denominator of the equation for calculating human health criteria, the higher the value is, the lower (more stringent) the criteria become.

For bioaccumlative chemicals included on Ecology's Persistent Bioaccumulative Toxins (PBT) List, which Ecology terms the "worst of the worst", and which includes a number of PAHs and chlorinated pesticides, the average BAF value for these chemicals is more than 100 times higher than the average BCF value. By not accounting for bioaccumulation or biomagnification through the aquatic food chain, the criteria proposed by Ecology, utilizing BCFs rather than

---

[219] See lengthy discussion in Section VIII.B for additional information as to why the CWA does not prohibit standard setting for pollution parameters that are from sources other than NPDES permits.

[220] Washington Department of Ecology (Ecology). 2015. *Washington Water Quality Standards: Human health criteria and implementation tools, Overview of key decisions in rule amendment*. Publication no. 14-10-058. January.

[221] U.S. Environmental Protection Agency (EPA). 2014b. *Human Health Ambient Water Quality Criteria: Draft 2014 Update*. EPA-820-F-14-003. Office of Water. May

[222] Id

BAFs, may significantly underestimate the accumulation of contaminants in fish and shellfish, and the resulting criteria may be significantly underprotective of consumers of fish and shellfish from Washington's waters. PAHs are among the most common contaminants measured in Puget Sound shellfish. [223]

In combination with other decisions made by the state as part of the draft rule, including the use of a less stringent target cancer risk level and the use of a relative source contribution of 100 percent, the failure to account for bioaccumulation will likely result in criteria that are underprotective of tribal fish consumers and other high fish consuming populations.

[223] Washington Department of Fish and Wildlife (WDFW). 2014. *Toxic Contaminants in Puget Sound's Nearshore Biota: A Large-Scale Synoptic Survey Using Transplanted Mussels (Mytilus trossulus)*. WDFW Report Number FPT 14-08. Puget Sound Ecosystem Monitoring Program (PSEMP). September.

VII. Relative Source Contribution

A. Ecology Must Utilize Default Relative Source Contribution Values as Recommended By EPA, or Use Values Based on Scientific Data, in Order to Accurately Account for Toxic Exposures and Set Criteria that Protect the Designated Uses

When deriving human health water quality criteria for non-carcinogens, a relative source contribution (RSC) factor is included to account for non-water sources of exposure to pollutants. The RSC designates a percentage of an individual's acceptable daily intake (or "reference dose") that accounts for exposures from water and fish when there are other possible exposure routes, including non-fish food consumption, dermal exposure, and respiratory exposure. The use of a RSC ensures that an individual's total exposure from all sources of a pollutant does not exceed a maximum acceptable daily intake.[224]

EPA's *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (2000), provides guidance for determining the appropriate RSC to be used for a particular chemical. **In the absence of data, the EPA recommends the use of 20 percent as the default RSC in calculating criteria for State or Tribal water quality standards**.

In 2013, EPA published "*Human Health Ambient Water Quality Criteria and Fish Consumption Rates Frequently Asked Questions*" to clarify agency policy and the guidance included in its 2000 Human Health Methodology. Discussing the RSC factor, EPA states:

> *In the absence of scientific data, the application of the EPA's default value of 20 percent RSC in calculating 304(a) criteria or establishing State or Tribal water quality standards under Section 303(c) will ensure that the designated use for a water body is protected. This 20 percent default for RSC can only be replaced where sufficient data are available to develop a scientifically defensible alternative value. If appropriate scientific data demonstrating that other sources and routes of exposure besides water and freshwater/estuarine fish are not anticipated for the pollutant in question, then the RSC may be raised to the appropriate level, based on the data, but not to exceed 80 percent. The 80 percent ceiling accounts for the fact that some sources of exposure may be unknown.*

[224] EPA. 2000.supra; EPA. 2014. supra

Despite EPA guidance, the Department of Ecology "is proposing that the draft rule uses a relative source contribution value of one", or 100 percent. The rationale for this decision is included in Ecology's "*Overview of key decisions in rule amendment*". Specifically, the decision for the draft rule states that:

> *Because the geographic and regulatory scope of the CWA addresses contaminant discharge directly to waters of the state (not other sources or areas), Ecology is making a risk management decision that this draft rule continue to use a relative source contribution of one (RSC = 1). Given the limited ability of the Clean Water Act to control sources outside its jurisdiction, Ecology strongly believes that this is a prudent decision.*

As part of the rationale used to support this position, Ecology cites the following language from EPA's *Water Quality Standards Handbook,* which it characterizes as being "different from the EPA 2000 guidance" and which "indicates that in practice criteria may be based on risk from only the surface water exposure routes":

> *Human Exposure Considerations*
>
> *A complete human exposure evaluation for toxic pollutants of concern for bioaccumulation would encompass not only estimates of exposures due to fish consumption but also exposure from background concentrations and other exposure routes. The more important of these include recreational and occupational contact, dietary intake from other than fish, intake from air inhalation, and drinking water consumption. For section 304(a) criteria development, EPA typically considers only exposures to a pollutant that occur through the ingestion of water and contaminated fish and shellfish. This is the exposure default assumption, although the human health guidelines provide for considering other sources where data are available (see 45 F.R. 79354). Thus the criteria are based on an assessment of risks related to the surface water exposure route only (57 F.R. 60862-3).*

Although Ecology characterizes this discussion as being different from the EPA 2000 guidance, it appears to be completely consistent with current guidance. Because "EPA typically considers only exposures to a pollutant that occur through the ingestion of water and contaminated fish and shellfish" it recommends the use of an "exposure default assumption" of 20 percent. Since the criteria are based on health risks related to the surface water exposure route only, the use of a default RSC helps to ensure that an individual's total exposure from **all** sources of a pollutant does not exceed a maximum acceptable daily intake. **Since the human health water quality criteria are only addressing a portion of an individual's exposure, they are assigned only a portion the overall risk.**

By proposing to use a RSC of 100 percent, it appears that Ecology has misconstrued the existing EPA guidance. The guidance does not suggest, as Ecology suggests above, that the Clean Water Act is intended to **control** sources outside its jurisdiction, only that it **accounts** for them. Ecology has taken the position that because regulation of other exposures is beyond the scope of the Clean Water Act jurisdiction, that it is therefore prudent to allot **all** of an individual's acceptable daily intake to drinking water and fish consumption (or, in the case of marine criteria, which apply to the waters of Puget Sound, only to fish consumption). If all of an individual's acceptable daily intake comes from surface water exposures, then any additional exposure would exceed the acceptable daily intake, and would increase the likelihood of a variety of non-cancer health effects.

EPA guidance states that "[w]hen other sources or routes of exposure are anticipated but data are not adequate, there is an even greater need to make sure that public health protection is achieved".[225] Not only has the State not provided data regarding other sources or routes of exposure for non-carcinogens, but there is ample evidence that a variety of non-water sources of exposure exist for most chemicals.

In its *PAH Chemical Action Plan*,[226] Ecology notes the following regarding sources of PAH exposures:

- Everyone is exposed to PAHs, which are present in food and found throughout the environment in air, water, soil, and dust. The importance of various sources of exposure to PAHs is expected to differ from person to person due to factors such as diet, the use of wood stoves in the neighborhood, occupation, and personal habits like smoking.

- Food accounts for 80 to 95% of PAH exposure for people who do not smoke and who do not have significant exposure on the job. For the average consumer, the three food groups that contribute most to dietary exposure appear to be cereals, vegetables/nuts, and meat. For people who regularly eat shellfish, PAH exposure from seafood may contribute 25% or more of dietary exposure.

- For smokers, PAH exposure from tobacco smoke can equal or exceed that from food. People who live or work with smokers can have greater than normal exposure to PAHs.

[225] EPA. 2000. Supra

[226] Washington Department of Ecology (Ecology). 2012. *PAH Chemical Action Plan*. Publication no. 12-07-048. December. Available at https://fortress.wa.gov/ecy/publications/publications/1207048.pdf

- Inhalation of PAHs in air is estimated account for about 10% of exposure.

- Two major contributors of airborne PAHs in the Puget Sound region of Washington are exhaust from combustion engines and wood smoke from home heating.

- PAHs in water and soil are estimated to make only a minor contribution to most people's exposure.

Several of the PAHs are non-carcinogens, including fluoranthene, which is included on Ecology's list of Persistent Bioaccumulative Toxins (PBTs) that it considers the "worst of the worst."

Some other examples of non-water exposures to non-carcinogens include:

Toluene
Because toluene is a common solvent and is found in many consumer products, you can be exposed to toluene at home and outdoors while using gasoline, nail polish, cosmetics, rubber cement, paints, paintbrush cleaners, stain removers, fabric dyes, inks, adhesives, carburetor cleaners, and lacquer thinners. Smokers are exposed to small amounts of toluene in cigarette smoke. [227]

Ethylbenzene
The highest exposure to ethylbenzene for the general public is most likely to occur via inhalation associated with the use of self-service gasoline pumps or while driving a gasoline-powered motor vehicles especially in high traffic areas or in tunnels.[228]

Endrin
Because endrin is no longer used in the United States, residues on imported foods are the main source of potential human exposure in food.[229]

[227] Agency for Toxic Substances and Disease Registry (ATSDR). 2000. *Toxicological Profile for Toluene*. U.S. Department of Health and Human Services, Public Health Service. August.
[228] Agency for Toxic Substances and Disease Registry (ATSDR). 2010. *Toxicological Profile for Ethylbenzene*. U.S. Department of Health and Human Services, Public Health Service. November.
[229] Agency for Toxic Substances and Disease Registry (ATSDR). 1996. *Toxicological Profile for Endrin*. U.S. Department of Health and Human Services, Public Health Service. August.

By electing to use a RSC value of 100 percent for all non-carcinogens, the criteria proposed by Washington are not consistent with EPA policy and guidance, do not account for non-water sources of exposure, and are therefore not adequately protective of the designated uses.

VIII. Special Chemical Situations and other Provisions

A. Arsenic

B. Mercury

C. PCBs

D. Dioxins and the calculation of carcinogens as non-carcinogens

E. “Anti-backsliding” provisions

F. Protection of downstream uses

A. Arsenic

1. Ecology must reconsider use of the Safe Drinking Water Act (SDWA) arsenic standard of 10μg/L and recalculate standards that reflect protection of designated uses.

The tribes request that Ecology reconsider their proposed arsenic water quality standard based on the comments below. The use of the SDWA standard for arsenic as a surrogate, is neither protective of human health, nor compliant with the Clean Water Act, and therefore should not be used as a water quality standard. Ecology should calculate a standard for arsenic that ensures human health is protected of both chronic and acute exposures, takes into consideration multiple pathways of exposure – not just drinking water, and implements the precautionary principle by erring on the side of protection of human health in light of purported "uncertainty" of the cancer slope factor.

2. Arsenic is a ubiquitous, harmful toxic substance, which causes serious health impacts at low doses.

a. Arsenic and its sources

Arsenic, a naturally occurring element, has properties of both a metal and a nonmetal. However, arsenic is generally referred to as a metal and is a solid, steel grey material in its elemental form.

In its inorganic form, it is usually found in the environment combined with other elements, including sulfur, oxygen, or chlorine.[230] Inorganic arsenic compounds include arsenic acid, arsenic trioxide, and arsenic pentoxide. Arsenic can also combine with hydrogen and carbon, creating organic arsenic compounds (metalloids), such as arsanilic acid, arsenobetaine, and dimethylarsinic acid.[231] Most inorganic and organic arsenic compounds are odorless, tasteless, white or colorless powders that do not evaporate.[232] Naturally and man-made inorganic arsenic can be found in soil, many kinds of weathered rock, results of smelting, combustion of fossil fuels, exposed mining waste,

[230] ATSDR (Agency for Toxic Substances and Disease Registry). 2007. Toxicological profile for Arsenic. US Department of Health and Human Services. Public Health Service. CAS#: 7440-38-2

[231] EPA (U.S. Environmental Protection Agency). 2012b. Arsenic Compounds Hazard Summary. Available at http://www.epa.gov/ttn/atw/hlthef/arsenic.html.

[232] ATSDR 2007

wood preservative facilities and ground water associated with mining.[233] Inorganic arsenic is especially associated with minerals and ores that contain copper or lead. Heating these types of ores in smelters will precipitate most of the arsenic as a fine dust which enters the atmosphere. Collection of arsenic by smelters as a compound called arsenic trioxide (As2O3) can be achieved. Copper chromated arsenate (CCA) is the preservative used to make "pressure-treated" wood. Arsenic treated wood products continue to be used in industrial applications.

Organic arsenic compounds, namely cacodylic acid, disodium methylarsenate (DSMA), and monosodium methylarsenate (MSMA) are used as pesticides. Other uses of organic arsenic include, additives in animal feed and an additive to other metals to form metal mixtures or alloys with improved properties. Predominantly, arsenic in alloys is used in lead-acid batteries for automobiles, as well as is in semiconductors and light-emitting diodes.[234]

Arsenic occurs naturally in the Earth's crust, as well as through deposition from anthropogenic sources and industrial processes.[235] Arsenic from deposition enters the water, sediment, soil, and air, and eventually accumulates throughout the food chain.

Anthropogenic sources of arsenic include agricultural insecticides, larvicides, herbicides, and wood preservatives.[236] Almost 80 percent of arsenic produced by humans is released into the environment through pesticides[237]. Arsenic is found in soils at higher concentrations than the state Model Toxics Control Act (MTCA) cleanup levels in residential areas near Tacoma, WA and was distributed from Asarco Tacoma smelter emissions while in operation from 1890 to 1986.[238]

---

[233] See Ferguson, J.F. and J. Gavis. 1972. A review of the arsenic cycle in natural waters. Water Research 6: 1259-1274; Smedley, P.L. and D. G. Kinniburgh. 2001. A review of the source, behavior and distribution of arsenic in natural waters. Applied Geochemistry 17: 517-568; Wang, S. and C.N. Mulligan. 2006. Occurrence of arsenic contamination in Canada: sources, behavior and distribution. Science of the Total Environment 366: 701-721.

[234] ATSDR. 2007. Supra

[235] Bligh, R. and R. Mollehuara. 2012. Arsenic- Sources, Pathways, and Treatment of Mining and Metallurgical Effluents. Outotec. Output SEAP. Available at: http://www.outotec.com/imagevaultfiles/id_552/cf_2/arsenic_-_sources-_pathways_and_treatment_of_minin.pdf.

[236] Bligh and Mollehuara.2012

[237] Id.

[238] Golding, S. 2001. Survey of typical soils arsenic concentraitons in residential areas of the City of

b. Human Health Impacts Associated with Arsenic[239]

For most of the population, uptake of arsenic through food is the major source of exposure. Among foods, the highest concentrations of arsenic are generally found in fish and shellfish, existing primarily as organic compounds. EPA has classified inorganic arsenic as a human carcinogen. Human exposure to inorganic forms of arsenic may occur through drinking water. Further, elevated concentrations of inorganic arsenic may be present in soil because of natural mineral deposits or contamination from human activities, resulting in human exposure through dermal contact or ingestion. Additionally, inorganic arsenic released into the air from metal smelting processes or combustion of wood treated with arsenical wood preservative poses risks through inhalation.[240]

Acute oral doses of 600 micrograms per kilogram body weight per day (µg/kg/d) or higher of inorganic arsenic has resulted in death in humans. Lower dose ingestions include effects to the gastrointestinal tract, central nervous system, cardiovascular system, liver, kidney, and blood. Short-term inhalation exposure to inorganic arsenic has resulted in effects to the central and peripheral nervous system. Acute inhalation of arsine, a gas consisting of arsenic and hydrogen, has resulted in mortality at a concentration of 25 to 50 parts per million (ppm) in air. [241]Chronic or al exposure to elevated levels of inorganic arsenic has resulted in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, hyperpigmentation, gangrene of the extremities, vascular lesions, and liver or kidney damage in humans. Elevated arsenic concentrations in drinking water (including drinking water from wells) have been associated with behavioral and neurocognitive effects in children. Ingestion of inorganic arsenic has also been linked to a form of skin cancer and an increased risk of bladder, liver, and lung cancer. Effects associated with the chronic inhalation of inorganic arsenic include: dermatitis, conjunctivitis, rhinitis, and pharyngitis, or irritation of the mucous membranes and skin. Additionally, inhalation exposure to inorganic arsenic has been shown to be strongly associated with lung cancer[242]. Several studies have suggested

---

University Place. Ecology Publicaiton No. 01-03-008. Washington Department of Ecology, Environmental Assessment Program, Olympia, WA. 50p.

[239] See 66 Fed Reg 6976 at 7000 for additional discussion on health impacts associated with Arsenic exposure, incorporated here by reference.

[240] EPA. 2012. supra

[241] Id

[242] Id.

reproductive and developmental effects caused by arsenic exposure; however, the studies are not definitive. Inorganic arsenic can cross the human placenta, exposing the fetus, and there is evidence that exposure to arsenic in the womb and during early childhood may increase young adult mortality. Women working or living in close proximity to metal smelters have shown elevated rates of spontaneous abortion or deliver children with lower than normal birth weights.[243] Studies in animals show that large arsenic doses cause low birth weight, fetal malformations, fetal death, and illness in pregnant females.[244] Low-levels of arsenic have been found in breast milk, and chronic exposure in children may result in lower IQ scores.[245]

4. Ecology's proposal to use the SDWA standard for Arsenic is not protective of the designated uses, and therefore is not compliant with the CWA

As discussed in more detail in section III, the CWA, among many things, requires states to establish water quality standards that protect the designated uses. In establishing standards for the protection of human health, EPA recommends the methodology employed in their guidance document "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health." Nothing in this document suggests that other health-based standards should be adopted whole cloth as surrogates, while circumventing calculation of criteria.[246]

a. The SDWA is not an appropriate CWA surrogate

[243] Id

[244] ASDTR. 2007

[245] EPA.2012

[246] See EPA.2000.Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, publication number EPA-822-B-00-004. Page 1-8 Available at http://water.epa.gov/scitech/swguidance/standards/upload/2005_05_06_criteria_humanhealth_method_complete.pdf. Where EPA discusses the need to develop consistency between CWA and SDWA, but explains that CWA and SDWA take different approaches. For example, EPA provided that "[w]ith the 2000 Human Health Methodology, EPA will publish its national 304(a) water quality criteria at a 10-6 risk level, which EPA considers appropriate for the general population. EPA is increasing the degree of consistency between the drinking water and ambient water programs, given the somewhat different requirements of the CWA and SDWA."

EPA's SDWA standard for Arsenic is not an appropriate standard to ensure protection of designated uses, because the final standard represents a negotiated outcome, which was selected – not for its protection of chronic and acute exposures to arsenic - but in for its value as a standard which balances many of the SDWA's competing goals. As a result, the proposed surrogate does not satisfy the CWA tests. To further understand this rationale, it is beneficial to understand more about the SDWA Arsenic standard.

i. Standard setting under the SDWA is based on different goals than CWA.

Distinguished from the CWA's singular aim to develop Water Quality Standards that protect designated uses, the SDWA requires the setting of both upper and lower limits for the protection of human health based on several factors.[247] The lower bounds set a protection of human health goal "at the level at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety."[248] The upper bound limits are to be based as close as possible on the lower bound health limits, while still being "feasible." [249] The SDWA provides a list of factors in determining what is "feasible."

> *the term "feasible" means feasible with the use of the best technology, treatment techniques and other means which the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration).*[250]

Additionally, the SDWA provides EPA with the discretion to determine whether or not the quantifiable and nonquantifiable benefits of an MCL justify the quantifiable and nonquantifiable costs. [251] The 1996 amendments to SDWA further provide to EPA the discretionary authority to then set MCLs that are less protective than what is feasible, when the cost benefit analysis does not justify the "costs of complying."[252] Under this discretionary authority, EPA need only

[247] See 42 USC § 300g

[248] § 300(b)(4)(A)

[249] §300(b)(4)(B)

[250] § 300(b)(4)(D)

[251] § 300(b)(3)(C)(i)

[252] §300(b)(6)(a)

demonstrate that the MCL "maximize[s] health risk reduction benefits at a cost that is justified by the benefits."[253]

In contrast to this discretionary authority that allows for standards to be based in part on treatment limitations, and in part upon the "cost of complying;" nothing in the CWA requires the setting of water quality standards to be based either on cost or best available technology. In fact, amendments to the Federal Water Pollution Control Act, ushering in a water quality standard based regulatory system, were developed in light of the limitations of solely applying technology based limits as an environmental standard.[254] In EPAs history of water quality standards they explain that for toxics, water quality, as opposed to technology based standards, where necessary to address this priority national issue.

> In the late 1970s, a greater appreciation evolved on the need to expand and accelerate the control of pollutants in surface waters using water quality-based controls. It became clear that primary reliance on industry effluent guidelines or effluent standards under Section 3O7 of the

[253] id

[254] EPA. Water Quality Standards History, Available at http://water.epa.gov/scitech/swguidance/standards/history.cfm *providng*

The decade of the 1970's saw State and EPA attention focus on creating the infrastructure necessary to support the NPDES permit program and development of technology-based effluent limitations. While the water quality standards program continued, it was a low priority in the overall CWA program. In the late 1970's and early 1980's, it became obvious that greater attention to the water quality-based approach to pollution control was needed to effectively protect and enhance the nation's waters.

The first statutory evidence of this was the enactment of a CWA requirement that after December 29, 1984, no construction grant could be awarded for projects that discharged into stream segments which had not, at least once since December 1981, had their water quality standards reviewed and revised or new standards adopted as appropriate under Section 303(c). The efforts by the States to comply with this onetime requirement essentially made the States' water quality standards current as of that date for segments with publicly-owned treatment works (POTWs) discharging into them.

Additional impetus to the water quality standards program occurred on February 4, 1987, when Congress enacted the Water Quality Act of 1987 (Pub. L. 1004). Congressional impatience with the lack of progress in State adoption of standards for toxics (which had been a national program priority since the early 1980's) resulted in the 1987 adoption of new water quality standard provisions in the Water Quality Act amendments. These amendments reflected Congress' conclusion that toxic pollutants in water are one of the most pressing water pollution problems.

> Act would not comprehensively address pollutants, particularly toxic pollutants, and that existing State water quality standards needed to be better developed. EPA moved to strengthen the water quality program to complement the technology based controls.
>
> To facilitate this effort, EPA decided to amend the Water Quality Standards Regulation to explicitly address toxic criteria requirements in State standards and other legal and programmatic issues. This effort culminated in the promulgation of a revised water quality standards regulation on November 8, 1983 (54 FR 51400), which is still in effect. This regulation is much more comprehensive than its predecessor and it includes many more specific regulatory and procedural requirements. Nonetheless, it is still a succinct and flexible regulation for a program with a scope as broad as the national water quality criteria and standards program. [255]

As a result, todays technology based standards are applied only to NPDES permits, and only to the extent that water quality standards are not violated using such a standard - otherwise a water quality-based effluent limitation (WQBEL) is required for an NPDES permit.[256] Technology limits are not applied for the purpose of determining the acceptable level of pollutants that will ensure protection of designated uses (as administered through section 303, 401). As EPA has explained, the priority issues of toxic pollution were significant drivers in the reformation of what was primarily a technology based pollution control system.

ii. EPA's Arsenic rule is a negotiated technology based standard that sets levels of contaminants far exceeding both MCLG and the level that was feasible.

In 2000, EPA originally proposed a health-based, non-enforceable goal, or Maximum Contaminant Level Goal (MCLG) of zero micrograms per liter (µg/L) for Arsenic.[257] EPA also proposed as a preferred standard, the upper bound, or

[255] EPA. Water Quality Standards History. Available at http://water.epa.gov/scitech/swguidance/standards/history.cfm

[256] EPA. "NPDES Permit Writers' Manual." September 2010. Document No. EPA-833-K-10-001. pp. 1-3–1-5.

[257] 66 FR 6979

Maximum Contaminant Level (MCL) of 5 µg/L.[258] In proposing this standard, EPA also clearly stated that a more protective standard of 3 µg/L was in fact the "feasible" standard under the meaning of the SDWA. The 3 µg/L feasible MCL was established after considering treatment costs and efficiency under field conditions as well as considering the appropriate analytical methods.[259] However, because EPA determined that the benefits of regulating arsenic at the feasible level would not justify the costs, the EPA eventually proposed an MCL of 5 µg/L, while requesting comment on MCL options of 3 µg/L (the feasible level), as well as, 10 µg/L, and 20 µg/L.[260]

After consideration of public comments, EPA ultimately adopted a MCL of 10 µg/L, which greatly exceeded the feasibility standard, of which the SDWA encourages adoption of. In doing so EPA, explained that they reexamined the proposed MCL of 5 µg/L and in comparing this level to 10 µg/L, EPA determined that the benefit-cost relationships were less favorable for 5 µg/L, and that the total national costs at 5 µg/L are also approximately twice the costs of an MCL of 10 µg/L.[261] After determining that associated issues of cost, EPA invoked their discretionary authority for only the second time since passing the SDWA amendments in 1996[262] to set an MCL less protective then what was "feasible" in an effort to address the identified economic concerns. Therefore, by EPA's own admissions, the SDWA standard for arsenic does not ultimately achieve a standard designed solely to protect human health, but instead seeks to balance numerous additional external considerations, e.g. cost of compliance, which are not relevant to determining a safe chronic exposure threshold necessary for protecting designated uses. If Ecology were to import an analogous standard from the SDWA to achieve the purposes of the CWA, a more appropriate standard would be the MCLG.

[258] id

[259] id

[260] 66 FR 6980

[261] Id

[262] 66 FR 7020

iii. The SDWA standard does not account for arsenic exposure via bioaccumulation of fish and subsequent fish consumption, and therefore does not protect the fishable designated use or human health.

Another significant flaw in using the SDWA standard as a surrogate for HHC, is that it does not set standards based on multiple exposure pathways. The SDWA is a drinking water only standard, whereas the HHC per EPA's 2000 AWQC guidance, is required to develop criteria based on exposures through fish consumption *and* drinking water (in the case of freshwater criteria). Setting standards based on multiple exposure pathways is important for several reasons. First, one of the designated uses protected by the HHC, is the "fishable" use, and as EPA has recently noted in the partial disapproval of Maine's water quality standards, that use also inherently includes the protected right to safely consume fish and shellfish. [263] Therefore, in order to protect the use of safe consumption of seafood (also a treaty-reserved right), the CWA must account for safe levels of arsenic. To do that, Ecology must consider both safe levels of arsenic in shellfish and finfish, as well as safe levels of drinking water, which will both be consumed daily. Second, it is important that Ecology consider Arsenic exposure through consumption of seafood, because those exposure pathways may represent the highest levels of exposure. According to the ASTDR:

> ***For most people, diet is the largest source of exposure to arsenic****. Mean dietary intakes of total arsenic of 50.6 µg/day (range of 1.01–1,081 µg/day) and 58.5 µg/day (range of 0.21–1,276 µg/day) has been reported for females and males (MacIntosh et al. 1997). U.S. dietary intake of inorganic arsenic has been estimated to range from 1 to 20 µg/day, with grains and produce expected to be significant contributors to dietary inorganic arsenic intake (Schoof et al. 1999a, 1999b).* ***The predominant dietary source of arsenic is generally seafood.*** *Inorganic arsenic in seafood sampled in a market basket survey of inorganic arsenic in food ranged from <0.001 to 0.002 µg/g (Schoof et al. 1999a, 1999b).* [264]

[263] Letter from Curtis Spalding EPA Regional Administrator to Patricia W.Aho, Commisioner February 2 2015 Appendix A

[264] See ASTDR. 2007. Toxicological Profile for Arsenic at page 315. Available at http://www.atsdr.cdc.gov/toxprofiles/tp2.pdf

Additionally, it is well understood that aquatic species bioaccumulate and biocentrate arsenic.[265] These aquatic species are then consumed, and transferred to the human body.

Failing to base an arsenic standard on bioaccumulation and subsequent fish consumption exposure pathways in combination with drinking water intake, will not result in water quality standards that are calibrated to protect the "fishable" designated use, nor calculated to estimate likely exposure of arsenic at levels protective of human health. Instead, the SDWA surrogate is likely to result in a gross underestimate of exposure.

A good example that demonstrates the disparity between a drinking water only standard and a drinking water and fish consumption standard, is to compare the current NTR with the SDWA arsenic rule. The existing NTR (although underestimating the exposure by utilizing a inaccurate FCR) sets arsenic water quality standards at .018 μg/L for freshwater and 0.14 μg/Lf or marine waters. These standards were calculated using methodology relatively consistent with EPA's 2000 AWQC guidance to account for protection of human health and the fishable designated use. Essentially, this criterion stands for the assumption that safe water quality standards for arsenic (even assuming gross underestimation of fish consumption rates) are below 1μg/L. Also, as a point of comparison, Oregon's water quality standards also utilized EPA's 2000 AWQC guidance, and even though greatly increased the risk level from 10^{-6} to 10^{-4}, set standards at 2.1 μg/L and 1.0 for fresh and marine water criteria respectively. When we compare these levels with the proposed 10μg/L (for total arsenic) imported from the SDWA, it demonstrates that utilizing EPA methodology (AWQ HHC guidance) that accounts for both seafood and drinking water intake results in a much different and much more protective standard. This additional protection is presumably necessary to meet multiple CWA goals, which includes the safe consumption of seafood. To assume otherwise, is to invalidate the purpose of the EPA's 2000 methodology.

The comparison between the AWQC guidance derived criterion and SDWA derived criterion, also demonstrates that SDWA standard is likely to introduce excessive risk, not otherwise approvable by EPA. If Ecology were to use EPA's

[265] See M. Azizur Rahman′ Hiroshi Hasegawa, Richard Peter Lim. 2012. Bioaccumulation, biotransformation and trophic transfer of arsenic in the aquatic food chain. Environmental Research, Volume 116, July 2012, Pages 118–135; See also ASTDR. 2007. Toxicological Profile for Arsenic. Available at http://www.atsdr.cdc.gov/toxprofiles/tp2.pdf

2000 methodology to arrive at a criterion value equal to that of the SDWA's arsenic standard of 10 μg/L then it would require Ecology to utilize a cancer risk level well below EPA's recommended levels. For example, if Oregon calculated an arsenic criteria of 1.0 μg/L for marine waters using an FCR of 175 gpd and a cancer risk level of 10^{-4}, then Ecology, which has similarly proposed an FCR of 175gpd would need to utilize a cancer risk level in the range of 10^{-3} (of course adjusting for differences between total arsenic and inorganic) to result in a criteria similar to the proposal. This further demonstrates that Ecology is setting a criteria which proposes substantial risk, which is likely to exceed EPA's allowable thresholds.

Therefore, in athe proposed arsenic standard of 10 μg/L does not meet the necessary tests for designated use protection, because it ignores the most significant exposures, is not calibrated to address all of the CWA goals, including fishable designated use protection, and exceeds EPA thresholds for an allowable risk level.

b. Increasing allowable arsenic concentrations sets the stage for violations of the CWA's anti-backsliding laws.

The National Discharge Elimination System (NPDES) is designed to ratchet down on pollution discharges overtime, with the goal of eliminating pollution and restoring the nations waters.[266] Under the NPDES program, pollution effluent limits should be reduced as the regulated facility moves through multiple five-year permit cycles. The CWA expressly prohibits the development of NPDES permit effluent limitations that authorize an *increase* in the discharge of pollutants, stating, "a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit." [267] This prohibition is known as "anti-backsliding." Although the anti-backsliding provisions of the CWA are subject to some exceptions, such as availability of new information, nothing in the law expressly provides for changes in regulation that are intended to make compliance easier for the regulated community.[268] In fact, the anti-backsliding provisions were intended to accomplish quite the opposite – to prevent the discharge elimination goals

[266] See 33 USC § 1251 et seq

[267] See 33 USC §1342(o)(1)

[268] See 33 USC §1342(o)(2)

of the act from being shifted by political winds. However, by setting revised standards that are significantly less protective then those previously codified, Ecology is setting the stage for development of subsequent effluent limitations "which are less stringent than the comparable standards," because the standards that they will ultimately be based on will now allow in excess of a hundred times more arsenic than previously authorized. Moreover, these new allowances for pollution are not based on new science demonstrating that arsenic is somehow less harmful and therefore larger doses are now considered acceptable. The standards have become significantly less protective largely because Industry has requested regulatory relief. [269]

c. Ecology's proposed footnote requiring AKART is a positive step, but is not a mitigating factor for a less stringent standard.

It is noted that Ecology does state - through the use of a footnote in the arsenic standard - that facilities will be required to implement all known, available, and reasonable methods of prevention, control, and treatment (AKART) regardless of the relaxing of arsenic criteria. The footnote is an important reminder of state legal requirements that permittees must comply with when developing effluent limits. However, the footnote is not mitigation for excessively relaxing the arsenic standard, because it introduces no new regulatory requirements. The requirement to apply AKART has long been established by state law, and all discharge permits are required to meet these minimums.[270]

d. Uncertainty regarding the cancer potency factor for arsenic is not a reason to use a technology based standards for designated use protection.

The predominant justification for not using the AWQC guidance for calculation of an arsenic standard, is the purported "uncertainty" surrounding the cancer potency factor (CPF).[271] Ecology notes that EPA is reexamining the existing CPF in the IRIS database, and therefore the existing CPF should not be used until updates are completed. Ecology

[269] See Section I and III for furhter discussion.

[270] See RCW 90.48.520 requiring AKART for discharge of "toxicants" and stating "all known, available, and reasonable methods of prevention, control, and treatment."

[271] Ecology. 2014. Washington Water Quality Standards: Human health criteria and implementation tools: Overview of Key decisions document, at page 46.

further points out that neither the California toxics rule, nor the SDWA arsenic standard used the most recent CPF (1998).

The presence of some uncertainty is not *justification to increase* arsenic pollutant concentrations and subsequent potential exposures. In light of a lack current scientific consensus, it is best to apply the precautionary principal, i.e. if an action or policy has a suspected risk of causing harm to human health, then the burden of proof that the action is *not* harmful falls on those taking an action. Merely demonstrating the existence of some uncertainty does not satisfy that burden. In the case of the arsenic, that burden of proof has not been satisfied, based on the aforementioned reasons.

Additionally, it is worth noting that despite purported uncertainty surrounding CPFs in the California Toxics Rule and SDWA, both Oregon's and EPA's national recommended 304(a) criteria have utilized an arsenic CPF to calculate criteria using EPA's 2000 AWQC guidance methodology. Ecology should strongly consider following a similar approach.

B. Mercury

Northwest Indian Fisheries Commission requests that Ecology not defer updating criteria for Mercury. Ecology should utilize EPA guidance in combination of with the application of regional FCRs, to develop a methylmercury standard.

Ecology proposes that a single parameter remain under the NTR - mercury (total Mercury). The justification for this decision is not based on a lack of science, or a lack of information to suggest that mercury is a ubiquitous problem in the state. In fact, it is quite to the contrary, EPA has developed guidance on establishing Mercury criterion[272] and implementing it[273](subsequent the publication of the NTR), and numerous Ecology, and Department of Health studies have shown that Mercury is a serious pollution issue in the state of Washington.[274] In fact mercury is continually indentified as a leading problem contaminant for fish health advisories, and therefore has a direct effect on treaty-reserved resources. Nonetheless, Ecology has taken an approach to delay updating Mercury criteria, because they believe updating standards should coincide with a the development of a "comprehensive implementation plan."[275] In doing so, Ecology ignores that there is ample new science, including information regarding FCRs and Bioaccumulation Factors (both of which are discussed at length in this review), which render the current standards inaccurate. Ecology is therefore obligated as a delegated authority to revise mercury standards applying updated, best available science. Ecology should utilize EPA guidance in combination of with the application of regional FCRs, to develop a methyl mercury standard.

1. Methymercury is extremely harmful to human health, and fish consumption is the major exposure pathway.

The major pathway for human exposure to methylmercury is consumption of contaminated fish. Dietary methylmercury is almost completely absorbed into the blood and is distributed

[272] EPA. 2001. Water Quality Criteria: Notice of Availability of Water Quality Criteria for the Protection of Human Health: Methyl Mercury avaiable at 66 FR 1344.

[273] EPA. 2010. Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion. EPA 823-R-10-001. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

[274] See Puget Sound Toxics Loading Study Phases 1-3; Department of Health Fish Advisories; Washingtons Water Quality Assesment and 303(d) list, available at http://www.ecy.wa.gov/programs/wq/303d/currentassessmt.html Ecology. 2003. Mercury Chemical Action Plan. Department of Ecology Publication No. 03-03-001

[275] Ecology. 2015. Overivew of Key Decisions. page 51

to all tissues including the brain; it also readily passes through the placenta to the fetus and fetal brain. [276]

Sources of mercury include atmospheric deposition, erosion, urban discharges, agricultural materials, mining, combustion, and industrial discharges. [277]Mercury exists in three chemical forms: methylmercury, elemental mercury, and other mercury compounds (both inorganic and organic). However, methylmercury is the most important form toxicologically, because it can be readily taken up across lipid membrane surfaces. Moreover, methylmercury can be bioconcentrated in fish tissues over a thousand times from water concentrations as low or lower than 1 micrograms per liter (µg/L).[278] Exposure to methyl mercury is usually through ingestion of fish and shellfish. Minamata disease from eating fish with methylmercury from industrial sources discharged to Minamata Bay in Japan is a famous example of mercury poisoning.[279] Thousands of people suffered from methylmercury poisoning. In terms of determining risk from exposure to mercury, various factors need to be taken into account. These factors include the chemical form of mercury, the dose, the age of the person exposed, the route of exposure, and the overall health of the person exposed. High levels of mercury exposure can have impacts on the brain, heart, kidneys, lungs, and immune system. The Minamata case was one of very high industrial waste discharge over a long period with several routes of exposure accounting for the extreme health concern. However, it has been demonstrated that high levels of methylmercury in the bloodstream of unborn babies and young children may harm the developing nervous system, making the child less able to think and learn. It is well known that pregnant women, infants, and children are most susceptible to the effects of mercury exposure. Exposure to methylmercury in the womb resulting from a mother's ingestion of contaminated fish and shellfish can affect the brain and nervous system of a growing baby, which can lead to impaired cognitive function, memory, attention, language, and fine motor and spatial skills. Symptoms of methylmercury poisoning can include impairment of

---

[276] See EPA. 2001. Water Quality Criterion for the Protection of Human Health: Methylmercury, Final. EPA-823-R-01-001 January 2001. Available at: http://water.epa.gov/scitech/swguidance/standards/criteria/health/upload/2009_01_15_criteria_methylmercury_mercury-criterion.pdf

[277] See Dvonch, J.T., J.R. Graney, G.J. Keeler, and R.K. Stevens. 1999. Use of elemental tracers to source apportion mercury in south Florida precipitation. Environ. Sci. Technol. 33: 4522-4527; and see also Wang, Q., D. Kim, D.D. Dionysiou, G.A. Sorial, and D. Timberlake. 2004. Sources and remediation for mercury contamination in aquatic systems – a literature review. Environmental Pollution 131: 323-336.

[278] Peakall, D.B. and R. J. Lovett.1972. Mercury: its occurrence and effects in the ecosystem. Bioscience 22: 20-25.

[279] Harada, M. 1995. Minamata disease: methyl mercury poisoning in Japan caused by environmental pollution. Crit Rev Toxicol. 25(1): 1-24.

peripheral vision, disturbances in sensations, lack of coordination in movement, and impairment of speech, hearing, walking, and muscle weakness. At high levels of exposure, elemental mercury can cause various effects on the kidneys, respiratory effects, and death. High exposure to inorganic mercury can cause gastrointestinal, nervous system, and kidney damage. Symptoms of inorganic mercury exposure include skin rashes/dermatitis, mood swings, memory loss, mental disturbances, and muscle weakness. [280]

Mercury enters surface waters as methylmercury, elemental mercury, or inorganic mercury, where it can exist in dissolved or particulate forms, which can undergo various transformations. The rate of transformation is determined by the balance of forward and reverse reactions related to local water characteristics. Methylmercury typically originates from bacterial reduction of inorganic mercury in sediment, often accompanied by low oxygen or anaerobic conditions. That is, the principal source of methylmercury is concentrated in fish. Recycling of methylmercury from sediment can last for decades after the principal source to a water body has ceased.[281] Mercury can also be present in surface waters in dissolved form, concentrated in the surface microlayer, attached to seston (organisms and non-living matter swimming or floating in a water body), in the bottom sediments, and in resident biota. In general, methylmercury is the most bioavailable and toxic form although it typically makes up less than 20 percent of total mercury within the water column.[282] In terms of availability in sediment, various factors including organic carbon and sulfur content can influence mercury bioavailability. [283]The form of mercury within a particular waterbody determines its bioavailability. Again, methylmercury, converted from other forms by bacteria in sediment and recycled to the overlying water available for uptake, is the most toxic form. Other forms of dissolved mercury are also available for uptake by aquatic plants, fish, and invertebrates. Mercury that concentrates in

[280] EPA (U.S. Environmental Protection Agency). 2014b. Mercury: Basic Information. Accessed on

6/23/14 at: http://www.epa.gov/mercury/about.html.

[281] Håkanson, L. 1975. Mercury in Lake Vänern- present status and prognosis. Swedish Environ. Prot. Bd., NLU, Report No. 80, 121 pp.

[282] See Kudo, A., H. Nagase, and Y. Ose. 1982. Proportion of methylmercury to the total amount of mercury in river waters in Canada and Japan. Water Res. 16: 1011-1015; Parks, J.W., A. Lutz, and J.A. Sutton. 1989. Water column methylmercury in the Wabigoon/English River-Lake system: Factors controlling concentrations, speciation, and net production. Can. J. Fish. Aquat. Sci. 46: 2184-2202.; Bloom, N.S. and S.W. Effler. 1990. Seasonal variability in the mercury speciation of Onondaga Lake (New York). Water Air Soil Pollut. 53: 251-265; Watras, C.J., K.A. Morrison, J. Host, and N.S. Bloom. 1995. Concentration of mercury species in relationship to other site-specific factors in the surface waters of northern Wisconsin lakes. Limnol. Oceanogr.40: 556-565.

[283] Tremblay, A., M. Lucotte, and D. Rowan. 1995. Different factors related to mercury concentration in sediments and zooplankton of 73 Canadian lakes. Water Air Soil Pollut. 80: 961-970.

the surface microlayer is available to organisms that live or feed on the surface (e.g., neuston). Mercury attached to seston can be ingested by aquatic animals that feed on plankton and mercury accumulated in sediments may be available to benthic plants and animals. Aquatic plants may take up mercury from air, water, or sediments. [284]In locations with mercury-contaminated sediments, levels of mercury in aquatic macrophytes have been measured at 0.01 micrograms per gram (µg/g), indicating strong accumulation from sediments.[285] The primary route of exposure of mercury to aquatic animals is from direct contact with mercury-contaminated sediments and water and ingestion of mercury-contaminated food. Fish can absorb mercury through the gills, skin, and gastrointestinal tract.[286] Contaminated fish then become a mercury source for piscivorous birds and mammals. Emergent aquatic insects represent another potential source of mercury to insectivorous birds and mammals.[287] Mercury tends to occur at higher concentrations at higher trophic levels in aquatic systems e.g., top predators), due to its bioaccumulating potential, mostly through recycling of methylmercury from sediments.

2. Water quality standards development should <u>not</u> be delayed due to implementation considerations.

In implementing the Clean Water Act for all parameters, whether conventional or non-conventional, states inevitably face difficulties. For example, in Washington, the state generally lacks an active program to control thermal loading due to degraded riparian habitat. Nonetheless, temperature standards were updated (after partial disapproval),

[284] Crowder, A. 1991. Acidification, metals and macrophytes. Environ. Pollut. 71: 171-203; Ribeyre, R. and A. Boudou. 1994. Experimental study of inorganic and methylmercury bioaccumulation of four species of freshwater rooted macrophytes from water and sediment contamination sources. Ecotoxicol. Environ. Safety 28: 270-286.

[285] See Wells, J.R., P.B. Kaufman, and J.D. Jones. 1980. Heavy metal contents in some macrophytes from Saginaw Bay (Lake Huron, USA). Aquat. Bot. 9: 185-193; see also Crowder, A.A., W. Dushenko, and J. Grieg. 1988. Metal contamination of wetland food chains in the Bay of Quinte, Ontario. Environment Ontario, Nov. 28-29, 1988. Toronto, Canada, pp. 133-153.

[286] Wiener, J.G. and D.J. Spry. 1996. Toxicological significance of mercury in freshwater fish. In: Environmental Contaminants in Wildlife: Interpreting Tissue Concentrations. W.N. Beyer, G.H. Heinz and A.W. Redman- Norwood (Eds.), Special Publication of the Society of Environmental Toxicology and Chemistry, Lewis Publishers, Boca Raton, FL, USA. pp. 297-339.

[287] Saouter, E., L. Hare, P.G.C. Campbell, A. Boudou, and F. Ribeyre. 1993. Mercury accumulation in the burrowing mayfly (Hexagenia rigida) (ephemeroptera) exposed to CH HgCl or HgCl in water and sediment. 3 2 Water Res. 27: 1041-1048; see also Dukerschein, J.T., J.G. Wiener, R.G. Rada, and M.T. Steingraeber. 1992. Cadmium and mercury in emergent mayflies (Hexagenia bilineata) from the upper Mississippi River. Arch. Environ. Contam. Toxicol. 23: 109-116.

primarily because new science and mapping clearly demonstrated that existing standards were not based on best available science, or protective of the designated uses.[288] However, lack of programmatic implementation of nonpoint source control is not a justification for avoidance of development of pollution limits (water quality standards).[289]

The Ninth Circuit's discussion regarding the implementation of § 303(d) is both analogous to the issue at hand and informative. The *Pronsolino* court explained at length that the CWA required implementation, and therefore presumably development, of water quality standards to control "whatever the source of any pollution." The Ninth explained that "one of the purposes of water quality standards therefore - and not surprisingly - is to provide federally approved goals to be achieved both by state controls and by federal strategies other than point-source technology based limits."[290] In further discussing section 303(d), the court noted that CWA regulations applied "whether a water body r

eceives pollution from points sources only, non-point sources only, or a combination of the two."[291] Therefore, given that water quality standard implementation, including the adaptive management of water quality standards by establishing TMDLs, applies to all water regardless of the relative influence of either point or nonpoint sources, it seems only logical that water quality standard development would also apply to all relevant water regardless of their sources of pollution.

EPA, in their history of Water Quality Standards further explains the importance of standards to the application of CWA programs other than point source regulation under section 402.

> Water quality standards are essential to a wide range of surface water activities, including: (1) setting and revising water quality goals for watersheds and/or individual water bodies, (2) monitoring water quality to provide information upon which

[288]See Letter from Mike Gearhead, director of office of water and watersheds to David Peeler, Ecology Water Quality Program Manager, re: Partial Disapproval of the 2003 Revisions to the Washington Water Quality Standards Regulations, March 22, 2006.

[289] In Ecologys Key Decision Overview Document, it is argued in the context of Relative Source Contribution, Bioaccumulation Factors, and Methylmercury that the CWA lacks jurisdiction over nonpoint sources and therefore Ecology does not have a duty to use HHC equation variables or update standards that would address nonpoint sources. However, nothing in the CWA provides that section 303, 319 and 401 application of water quality standards should be limited due to the nature of the sources that contribute to pollutant loading.

[290] Pronsolino v Nastri, 291 F.3d 1123 (9th Cir. 2002)

[291] id

> water quality based decisions will be made, (3) calculating total maximum daily loads (TMDLs), waste load allocations (WLAs) for point sources of pollution, and load allocations (LAs) for non point sources of pollution, (4) issuing water quality certifications for activities that may affect water quality and that require a federal license or permit, (5) developing water quality management plans which prescribe the regulatory, construction, and management activities necessary to meet the water body goals, (6) calculating NPDES water quality-based effluent limitations for point sources, in the absence of TMDLs, WLAs, LAs, and/or water quality management plans; (7) preparing various reports and lists that document the condition of the State's or Tribe's water quality, and (8) developing, revising, and implementing an effective section 319 management plan which outlines the State's or Tribe's control strategy for non point sources of pollution.

In an October 2011 press release regarding the development of human health criteria, the then Ecology Director agreed with this position and exclaimed that revised water quality standards were a foundational element of toxic pollution control.

> Ensuring that the state's environmental standards accurately reflect our citizens' exposure is the next step needed to reduce toxics in our environment and protect public health for Washington's fish and shellfish consumers.[292]

In sum, we see no justifiable basis for delaying water quality standard development for Mercury due to the nature of the pollution loading or the difficulty of resolving it.

3. EPA guidance requires states to update their mercury standards, and use local fish consumption data in doing so.

According to EPA, Ecology is required to update Mercury standards through the course of the triennial review process. Given that the current HHC proposal is a product of the triennial review process, it seems only appropriate that Ecology would also undertake

[292] Ecology News Release, *Ecology starts dialogue about reducing toxic chemicals in fish to better protect public health,* October 11, 2011, 11-Draft.

development of the Mercury standard required by the EPA. In EPA's 2010 guidance EPA stated:

At this time [i.e. 2010], about seven states, plus Washington D.C. and two territories have adopted a fish tissue criterion for methylmercury with EPA approval. EPA expects that with the publication of this guidance, states and authorized tribes will include new or revised criteria for methylmercury in their waters as part of the next three year review of standards required by section 303(c) of the Clean Water Act.[293]

In discussing the relationship between EPA's methylmercury criteria and their 2000 AWQC guidance for HHC, EPA explained that the states were still obligated to utilize local fish consumption data, and therefore should not just adopt EPA recommended numeric methyl mercury criteria whole cloth.

EPA encourages States and authorized Tribes to develop and adopt water quality criteria to reflect local and regional conditions…However, when establishing a numeric value based on a section 304(a) water quality criterion modified to reflect site-specific conditions, or water quality criteria based on other scientifically defensible methods, EPA strongly cautions States and authorized Tribes not to selectively apply data in order to ensure water quality criteria less stringent than EPA's section 304(a) water quality criteria. Such an approach would inaccurately characterize risk.[294]

For exposure assessment, States and authorized Tribes are encouraged to use local studies on human fish and shellfish consumption that better reflect local intake patterns and choices."[295]

Following EPAs 304(a) recommendations, with the exception of Relative Source Contribution, Oregon adopted methyl mercury criteria. [296] The criterion utilizes, as EPA requires, local fish consumption data.[297]

---

[293] EPA 2010 at 17

[294] 66 FR1347 emphasis added

[295] 66 FR 1346

[296] EPA. 2011. Technical Support Document for EPA's Action on Oregon's New and Revised Human Health Water Quality Criteria for Toxics and Associated Implementation Provisions Submitted July 12 and 21, 2011 October 17, 2011. At page 33. Available at http://www.epa.gov/region10/pdf/water/or-tsd-hhwqs-2011.pdf

[297] Id.

4. Ecology already uses fish tissue as a basis for 303(d) listings, which demonstrates the feasibility of developing and implementing a tissue-based standard.

Utilizing a fish-tissue based standard is not entirely foreign to Ecology. For many years the department of Ecology has used a fish tissue standard as the basis for listing many bioaccumative toxics on the 303(d) list of impaired waters. [298] Although, this approach is somewhat out of date in that in relies upon Bioconcentration Factors as opposed to Bioaccumulation Factors and utilizes criteria that do not incorporate accurate FCRs,[299] it does demonstrates the feasibility of implementing such a standard. First, it shows Ecology's comfort with calculating and correlating fish tissue data with impacts to the designated uses. And second, it demonstrates Ecology's willingness to utilize the standard in a regulatory context. The tribes support this approach, and Ecology should continue to do so using updated methylmercury criteria. To develop a HHC standard on tissue and implement through the NPDES program, Ecology need only run their existing listing process in reverse, i.e. translating a tissue based standard into a numeric water column-based standard. In other words, Ecology is already tackling some of the difficult implementation issue associated with tissue-based standards, such as translation. This is a scientifically sound and vetted approach. Ecology's argument that tissue-based standards create uncertainty and therefore warrant delay, is both contrary to their own existing policies, and generally unavailing.

[298] See Ecology. 2012. Water Quality Program Policy 1-11. at page 50. Available at http://www.ecy.wa.gov/programs/wq/303d/WQpolicy1-11ch1.pdf

[299] Id.

C. Polychlorinated Biphenyls (PCBs)

Ecology Must Update PCB Criteria In Order To Better Protect Human Health, By Incorporating Revised Human Health Criteria Variables Into Criteria Calculation

Ecology has proposed draft criterion of 0.00017 µg/L for total PCBs in the proposed amendments to the state's water quality standards. The proposed criteria for PCBs were set as part of the so-called anti-backsliding provision in the rule, because when the criterion were calculated by the Department of Ecology using the higher cancer risk level, the resultant values allowed greater concentrations of pollutants into the water (were less protective) than previously. Presumably, Ecology then determined that applying the higher cancer risk level resulted in standards that were not protective, and therefore decided NOT to revise criteria using the updated FCRs and other HHC variables discussed at length in this document. The approach of determining that a criterion is not adequately protective, but then address this lack of protection by taking no further action, is confusing, contrary, and defaults to the criteria defined in the 1999 revisions to the National Toxics Rule (NTR), which utilizes an inaccurate FCR and underestimates exposure.[300] Tribal fishery and cultural resources have been and continue to be greatly impacted by this bioaccumulative carcinogen and tribes cannot support Ecology's proposal to implement a status quo standard, which is based on several outmoded HHC variables as discussed in these comments.

PCBs are bioaccumulative carcinogens, which directly threaten tribal treaty-reserved resources and the tribal members that are economically, nutritionally, culturally and spiritually sustained by them. Washington's standards should be updated for PCBs using variables more accurately reflecting exposure and affording better protection of designated uses and human health – a 1 in 10^{-6} cancer risk level and full consideration of relevant bioaccumulation factors. Ecology needs to fully consider the health impacts of this bioaccumulative carcinogen and take the steps necessary to provide protection and build a safer future. Setting stronger regulations will drive technological innovation in the direction of removing this contaminant from Washington's waters to better protection of the health of future generations.

1. **PCBs are responsible for ubiquitous fish consumption advisories and impaired waters listings in Washington.**

[300] See Section II.

The Washington State Department of Health (DOH) has called PCBs methylmercury "the main contaminants of concern in Puget Sound Fish."[301] Since 1999, DOH has issued fish consumption advisories because of PCBs[302] for the Lower Columbia River, the Middle Columbia River, Bradford Island, the Upper Columbia River, Lake Roosevelt, the Duwamish River, Green Lake, Lake Washington, the Okanogan River, Puget Sound, the Spokane River, the Walla Walla River, the Wenatchee River, and the Yakima River. The extent of these advisories and the consumption restrictions are included as Attachment A[303]. In addition to prompting multiple fish consumption advisories, PCBs are a pollutant in many of the state's impaired waters. EPA's Water Quality Assessment and Total Maximum Daily Loads Information database[304] shows Washington has listed 34 miles of rivers and streams, 76,036 acres of lakes, reservoirs, and ponds, and 16.1 square miles of ocean and near coastal areas as impaired because of PCBs (Attachment B).[305] It is clear from the number and extent of Washington's fish consumption advisories and impaired waters that continued reliance on 15 year old standards is not working to keep our tribal resources safe for human consumption. More protective water quality standards for PCBs should be part of Washington's efforts to protect the health of its citizens.

2. Health Effects of PCBs

In its January 2015 "Overview of Key Decisions in Rule Amendment" document, Ecology appears to downplay the impact of PCBs on human health. The first statement in Ecology's discussion on the health effects of PCBs is that "Health effects that have been associated with exposure to PCBs include acne-like skin conditions in adults and neurobehavioral and immunological changes in children. PCBs have been shown to cause cancer in animals (EPA 2014)[306]". The discussion of Ecology's key decision on the health impact of PCBs is misleading and incomplete. PCBs are now recognized as endocrine disruptors in humans

[301] See DOH fish consumption advisory webpage at http://www.doh.wa.gov/CommunityandEnvironment/Food/Fish/Advisories/PugetSound

[302] http://www.doh.wa.gov/CommunityandEnvironment/Food/Fish/Advisories

[303] Derived from http://fishadvisoryonline.epa.gov/Advisories.aspx

[304] http://www.epa.gov/waters/ir/index.html

[305] http://ofmpub.epa.gov/tmdl_waters10/attains_state.cause_detail?p_state=WA&p_state_name=Washington&p_cycle=2008&p_cause_group_name=POLYCHLORINATED%20BIPHENYLS%20%28PCBS%29

[306] EPA, 2014. U.S. Environmental Protection Agency. Hazardous Waste PCBs Fact Sheet. Available online at: http://www.epa.gov/solidwaste/hazard/tsd/pcbs/about.htm

and exhibit synergistic toxicity with some dioxins and PBDEs,[307] which magnifies health impacts even at low levels of exposure. Existing body burdens of dioxin will also compound PCB's' health impacts.[308] In addition, PCBs are classified as Group 1 human carcinogens according to the International Agency for Research on Cancer (IARC).[309] EPA's 2014 PCB fact sheet report acknowledges that that by using a weight-of-evidence approach research studies now "provide conclusive evidence that PCBs cause cancer" in animals and "the data strongly suggests that PCBs are probable human carcinogens". The National Toxicology Program, in their Thirteenth Report on Carcinogens, further supports EPA's position.[310] Tribes and the general public need to know that Ecology has first and foremost fully considered the most recent evidence of the human carcinogenic and endocrine disrupting impacts of PCBs when making key decisions on setting human health-based criteria. It is not sufficient to resort to a "no backsliding" policy implementing the status quo, when *stronger* measures are needed to protect the health of tribal members and all Washington citizens that consume fish from Washington waters.

3. Ecology should no longer recommend method 608 as a Quantitation Limit

Ecology has recommended EPA standard method 608 for PCBs with a quantitation limit of 0.5 µg/L that is more than three orders of magnitude higher than the proposed standard of 0.00017 µg/L. In September 2010, EPA proposed to add EPA Method 1668C "Chlorinated Biphenyl Congeners in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS" to 40 CFR Part 136[311]. The method is a significant improvement in sensitivity. The reporting limits for congeners in aqueous samples using HRGC/HRMS are 0.0001- 0.0004 µg/L. The State of Oregon recommends[312] that certain facilities use EPA method 1668C to monitor for PCB congeners and gives permit writers discretion in selecting the method for compliance monitoring. Washington should recognize that analytical techniques for PCBs have evolved

[307] Pellacani, C., et. al., 2012, Synergistic interactions between PBDEs and PCBs in human neuroblastoma cells., Environ. Toxicol. 2012 Mar 20. Doi: 10.1002/tox. 21768.

[308] Uemura, H., et. al., 2009, Prevalence of metabolic syndrome associated with body burden levels of dioxin compounds among Japan's general population, Environmental Health Perspectives, Vol. 117, No. 5,

[309] See International Agency for Research on Cancer, IRAC,Monagraphs on the Evaluation of Carcinogenic Risks to Humans, avaiable at http://monographs.iarc.fr/ENG/Classification/

[310] See Substances Listed in the Thirteenth Report on Carcinogens, http://ntp.niehs.nih.gov/ntp/roc/content/listed_substances_508.pdf

[311] http://www.gpo.gov/fdsys/pkg/FR-2010-09-23/pdf/2010-20018.pdf

[312] ODEQ, 2014. Oregon Department of Environmental Qualtiy. Memo: Implementation Instructions for Polychlorinated Bipheyls (PCBs) Water Quality Criteria (CAS #: 1336363). November 28, 2014.

beyond method 608 and the state should require their use as part of a comprehensive effort to limit the release of PCBs into the environment.

4. Bioconcentration Factor vs Bioaccumulation Factor

PCBs tend to bioconcentrate in organisms at low trophic levels, and through the gills of fish that filter large amounts of water. However, PCBs also bioaccumulate in predatory organisms as the body burden of prey is transferred to the predator, including humans.[313] A prerequisite for a substance's strong bioaccumulation factor is an affinity for fat and persistence in the environment, both of which typify PCBs. Therefore, bioaccumulation factors support the best representation of exposure, and should be utilized when developing criteria for persistent, bioaccumulative, toxic pollutants with high bioaccumulation tendencies such as PCBs. Ecology has little scientific evidence to support their decision that using BCFs for PCB uptake is most reflective of the exposure pathway for PCBs. BAFs have been widely used in the scientific community for the past 35 years to most accurately describe the net increase of PCBs in predator species.[314] [315] While the choice of using a BCF or a BAF for determining the impact of PCBs on human health is a risk management decision, Ecology should be basing this choice on sound scientific principles and not on convenience.

5. Origination from Non-point Sources is not justification for inaction on PCB criterion

Some source assessments have shown that a significant portion of PCB loading may originate from non-point sources[316]. This fact does not alleviate the need to take action to reduce or eliminate as much PCB as possible from municipal and industrial point sources that sequester these pollutants, and provide key interception points to implement removal technologies. Source assessment studies have also shown that concentrations of PCBs in surface waters increase as water flows downstream and become impacted by human activities. To the maximum extent possible, regulations should limit the obvious impacts of human activities on water quality.

See Appendices for additional material.

---

[313] Alexander, D., 1999, Bioaccumulation, bioconcentration, biomagnification. Environmental Geology, Encyclopedia of Earth Science, pp 43-44.

[314] Borga, K. et. al, 2005, Bioaccumulation factors for PCBs revisited. Environmental Science and Technology, Vol. 39, No. 12, pp. 4523-4532.

[315] See also section VI

[316] Washington Department of Ecology, Spokane River PCB Source Assessment, June 5-6, 2012 Workshop presentation.

D. Dioxins

Ecology Must Recalculate Dioxin Criteria and Apply Best Available Science

Although the EPA has determined 2,3,7,8-Tetrachloro-dibenzo-p-dioxin (2,3,7,8-TCDD) and other dioxin-like compounds to be carcinogenic to humans, Ecology has elected in its draft rule to calculate human health criteria for 2,3,7,8-TCDD based only its non-cancer health effects. Because the resulting criteria would be less stringent than the existing NTR criteria, Ecology has proposed maintaining the existing criteria. However, the NTR criteria are calculated assuming a FCR of 6.5 grams per day, demonstrating that Ecology has likely underestimated exposure and therefore set a standard that does not reflect protection of designated uses.

As rationale for this change, Ecology cites "recent scientific information and uncertainty surrounding assessment of carcinogenicity", and the fact that the toxicity factors for dioxin have "been under review for many years". [317] While the EPA has not formally updated the cancer slope factor for dioxins, it has published a draft cancer slope factor which is more than five times higher than the previously published value, which would result in more stringent, not less stringent, criteria.[318]

By treating TCDD as a non-carcinogen, the criteria do not account for the additive carcinogenic effects of other dioxin-like compounds. In its 2002 compilation of national recommended water quality criteria, EPA included the following guidance:

> *The section 304(a) water quality criteria for dioxin contained in this compilation is expressed in terms of 2,3,7,8-Tetrachloro-dibenzo-p-dioxin (2,3,7,8-TCDD) and should be used in conjunction with the national/international convention of toxicity equivalence factors (TEF/TEQs) to account for the additive effects of other dioxin-like compounds (dioxins).*

[317] Washington Department of Ecology (Ecology). 2015. *Washington Water Quality Standards: Human health criteria and implementation tools, Overview of key decisions in rule amendment*. Publication no. 14-10-058. January.

[318] Rice, Glenn. 2010. *The U.S. EPA's Draft Oral Slope Factor (OSF) for 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)*. USEPA National Center for Environmental Assessment, Office of Research and Development. Science Advisory Board Dioxin Review Panel Meeting, Washington, DC. October 27.

By applying the TEF/TEQ approach, "the other highly toxic dioxins will be properly taken into account".[319] This approach is also consistent with the treatment of dioxin mixtures in the state's Model Toxics Control Act ("MTCA"; WAC 173-340).

It is the State's policy in other environmental regulatory programs, including MTCA and the Sediment Management Standards (SMS), to rely on other sources of information if toxicity parameters are not available through EPA's Integrated Risk Information System (IRIS). The SMS state that "if the value for a toxicological parameter is not available through IRIS, other sources shall be used" (WAC 173-204-561), and MTCA states that "If a carcinogenic potency factor is not available from the IRIS data base, a carcinogenic potency factor from HEAST or, if more appropriate, from the NCEA shall be used" (WAC 173-340-708). The cancer slope factor for TCDD, which is no longer available through the IRIS database, is available through the Health Effects Assessment Summary Tables (HEAST), and should be used for calculating criteria until a new value is published.

The result of the approach proposed by Ecology is draft human health criteria for dioxins that are among the least protective in the country. The criteria are 2.5 times less protective than the existing national recommended criteria, and 25 times less protective than those adopted by the State of Oregon.

[319] EPA 2002. National Recommended Water Quality Criteria:

E. State Adoption Of Existing NTR Criteria - The "Anti-Backsliding Policy Overlay"

***Washington's Proposal to Adopt Numerous NTR Criteria Violates the CWA Requirements to Enhance Water Quality Standards, and Revise Standards in Light of New Information*.**

As discussed previously the Clean Water Act requires establishing standards based on protection of designated uses, and for states to justify how their proposals achieve these levels of protection.[320] Additionally, the CWA requires that water quality standards "*enhance* the quality of water and serve the purposes of the Clean Water Act".[321] Revision to the NTR has been undertaken because of an agreement that existing standards fail to protect high fish consuming populations,[322] and both Ecology and EPA agree that progress in revising water quality standards is necessary.[323] Yet, despite acknowledgement that existing standards may not sufficiently protect human health, Washington plans to "adopt" these substandard federal regulations into state law, and in doing so, essentially incorporate standards that are based on outmoded and inaccurate FCRs. This approach undermines the fundamental goals that rule revisions intended to achieve – revising standards to protect high fish consuming populations. The basis for these proposals comes not from a scientific analysis conducted by the agency afforded discretion under the law, but from a policy mandate from the Governor's office. According to Ecology's own overview document:

> *…Governor Inslee announced as an overlay to all of the calculated criteria values (except arsenic):* ***the new criteria values are to be no less stringent than the current criteria values found in the National Toxics Rule (NTR)****. In effect, this means that if a criterion calculation results in a new criterion of a higher (less protective) concentration, the state will propose adoption of the NTR criterion instead. Thus, the preliminary rule contains a mix of (1) calculated criteria values,*

[320] 40 CFR 131.2 & 131.6(f) & see generally 40 CFR 131 et seq.

[321] 40 CFR 131.2 emphasis added

[322] See June 21, 2013 Letter from Dennis McLerran, EPA Regional Administrator to Maia Bellon, Director Washington State Department of Ecology, stating "…human health criteria currently in effect for CWA purposes in WA are sufficiently protective."

[323] See Ecology Publication FOCUS on fish and shellfish: Fish Consumption rates, available at https://fortress.wa.gov/ecy/publications/publications/1109053.pdf Stating, Currently the risks associated with eating contaminated fish and shellfish are based on outdated information about the general population and recreational anglers.

and (2) values based directly on the NTR as part of the overlain risk management direction described above. This does not apply to arsenic, copper, and asbestos where the preliminary proposals are values based on the Safe Drinking Water Act. [324]

As a result of this directive, some 57 criteria will not be updated, and instead will merely be adopted whole cloth into Washington code (see below for a break down by type of criteria). This directive was implemented, because it became widely recognized that Ecology's manipulation of the calculation's variables – primarily increasing the cancer risk level – resulted in a large portion of standards becoming less protective than the outmoded NTR.[325] Therefore, in order to avoid the then obvious implications that manipulation of calculation variables, despite increasing the FCR, would actually *increase* exposure to harmful pollutants, the Governor's office directed Ecology to cap proposed increasing concentrations of pollutants.[326] The net result is that almost a third of criteria are proposed for no-change, and no substantial justification is provided for this action.[327]

The Governor's directive to maintain the status quo, is an approach which attempts to navigate the lesser of two evils, and the tribes recognize that the state was on the cusp of proposing a majority of the freshwater criteria for carcinogens to become less protective than previous federal regulations. However, the approach of selecting the lesser of two evils does not make it acceptable to tribes, or for that matter approvable under the CWA.

As already stated, the intent of the CWA is to "enhance the quality of the water," by in part protecting designated uses. It does not logically follow that EPA would call into question the ability of the outdated and outmoded NTR (developed over 22 years ago) to protect those designated uses, only to have Washington propose that approximately a third of that criteria remain the same in the "new" standards.

---

[324] See Ecology. 2015. Supra at page 4.

[325] *Ecology's March 14, 2014 Draft Matrix (excel spreadsheet) demonstrating Human Health Criteria calculated using different values for toxicity factors, body weight, fish consumption rate, and risk levels.*

[326] See Ecology. 2015. Supra.

[327] Governor Inslee Press Release.

Comparison of Ecology's Proposed HHC with the NTR.[328] Numbers represent the number of criteria

CHANGE IN CRITERIA	FRESHWATER CARCINOGENS	FRESHWATER NON-CARCINOGENS	MARINE CARCINOGENS	MARINE NON-CARCINOGENS
INCREASE IN PROTECTIVENESS	11	25	43	29
REMAIN THE SAME	36	11	3	7
DECREASE IN PROTECTIVENESS	1	NA	1	NA
NEWLY REGULATED CHEMICALS TO BE CALCULATED USING $1X10^{-5}$	2	10	2	9

[328] Based on Ecology's Draft – Washington Human Health Criteria Review Documents Revised 8/8/2014 available at http://www.ecy.wa.gov/programs/wq/swqs/WAHHCrevdocs080714.pdf

F. Federally Required Protection of Downstream Uses

1. Washington's proposed water quality standards fail to demonstrate protection of downstream standards, including the tribes' and Oregon's, as required by federal regulations.

Pursuant to the CWA and its implementing federal regulation, states are required to demonstrate that new or revised water quality standards do not cause or contribute to violations of downstream standards. Federal regulations state:

> *In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.*[329]

This provision, as interpreted by EPA in their guidance on downstream water quality standards protection, requires states and authorized tribes adopting either narrative or numeric criteria to ensure the attainment and maintenance of downstream standards. EPA explains that the preferred path for states to comply with 40 CFR 131.10(b) is to develop water quality standards that are consistent with those downstream.[330]

EPA further explains the importance of developing consistency between standards:

> *Designated uses and water quality criteria that ensure attainment and maintenance of downstream WQS are important because they may help to avoid situations where downstream segments become impaired due, either in part or exclusively, to individual or multiple pollution sources located in upstream segments. Designated uses and water quality criteria that provide for the attainment and maintenance of downstream WQS may help support more equitable use of any assimilative capacity available to upstream and downstream pollution sources and/or jurisdictions and may facilitate restoration of the*

[329] 40 CFR 131.10(b)

[330] See EPA .2014. Protection of Downstream Waters in Water Quality Standards: Frequently Asked Questions. EPA-820-F-14-001. Available at http://water.epa.gov/scitech/swguidance/standards/library/upload/downstream-faqs.pdf

downstream waters. Ensuring the attainment and maintenance of downstream WQS during development of upstream designated uses and water quality criteria may also help limit and/or avoid resource-intensive water quality problems and/or legal challenges that can occur after adoption of uses and criteria that lack consideration of downstream waters' WQS. Furthermore, downstream protection consideration prevents the shifting of responsibility for pollution reductions from upstream sources and/or jurisdictions to downstream sources and/or jurisdictions.[331]

Unfortunately, Washington's proposed HHC do not meet these requirements because they establish standards for shared intra-state/tribal waters (e.g. Oregon, Spokane Tribe) whose current water quality standards are more protective than Washington's proposal. [332] This has the effect, as EPA notes in the quote above, of shifting the burden unto the tribes to regulate the inadequacies of upstream standards.[333] This issue is exacerbated by the fact that many tribes' jurisdictional boundaries lie at the mouths of streams, and therefore are downstream of most dischargers.

2. Ecology must adopt more protective numeric criteria to ensure consistency with federal regulations

Ecology must take measures to ensure consistency with federal regulations requiring that Washington's proposals are protective of downstream designated uses. Like EPA, the tribes' preferred approach to achieve this goal is to adopt significantly more protective criteria, as requested throughout these comments.

[331] Id at page 2

[332] See Ecology's document titled Washington Proposed HHC vs. Oregon Adopted HHC, available at http://www.ecy.wa.gov/programs/wq/swqs/ECYPropvsORHHC.pdf

[333] Although some tribes have adopted NTR-based criteria as a default due to resource constraints, many tribes are in now in process of updating and adopting their HHC and FCRs. Therefore, the adoption of NTR based criteria for tribes is not a reason to maintain state standards, as tribal criteria will be modified in the near future.

IMPLEMENTATION TOOLS

I. Compliance Schedules

Proposed Compliance Schedule Rules Are Overbroad, And Afford Ecology Too Much Discretion In Delaying Permit Compliance With Water Quality Standards. Rule Language Should Be Further Refined To Limit The Duration And Application.

A. Proposed regulations need to provide guidance on time limits.

According to federal regulations, compliance schedules must require compliance "as soon as possible, but not later than the applicable statutory deadline under the CWA."[334] The CWA sets many deadlines for the reduction and elimination of discharges, many of which have already passed.[335] For example, the CWA set a goal that all discharges to navigable waters be eliminated by 1987.[336] The CWA also sets requirements that technological limits and secondary treatment were established by 1977.[337] While the goal to eliminate harmful discharges by 1987 was admittedly optimistic, nothing in the act establishes that NPDES permit compliance with water quality standards can be suspended indefinitely or provides that states should have unlimited discretion in delaying compliance longer than a five year NPDES permit cycle. Existing Washington State regulations set compliance schedule limits at 10 years. Recent state legislation extended those limitations, but only under limited circumstances, which EPA has yet to review and approve.

[334] See CFR 122.47(2)(a)

[335] See 33 USC sec 1251(a)(1); See also 33 USC sec 1311(b)(1)(A),(B) and (C), 1311(b)(2)(C),(D) and (E), 1311(b)(3), 1311

[336] sec 1251(a)(1)

[337] See sec 1311(b)(1)

Ecology's proposed regulations eschew federal guidance by allowing compliance schedules of unlimited length, or only limited by the site-specific discretionary decisions of Ecology. Such a broad, open-ended provision provides little in the way of assurances that federal minimums and water quality standard attainment will be achieved when those decisions are made.

Longer timelines are problematic for several reasons. The longer the time line for compliance, the more difficult it will be for staff - both inside and outside of Ecology – to track progress. The longer the time line, the more likely administration changes will occur, resulting in a lack of policy and staff continuity. The longer the timelines, the more likely that permits may languish in bureaucratic obscurity, resulting in less immediate oversight and accountability. And the longer the timeline, the greater the likelihood that damages to treaty-reserved resources could occur, because essentially water quality standard noncompliance is authorized, allowing dischargers to pollute at levels known to be problematic to the protection of designated (treaty-reserved) uses.

For these reasons, the CWA established permit reissuances on relatively short, five-year cycles. The CWA also intended to usher in pollution controls in rather short order, as evidenced by the numerous deadlines seeking permit compliance decades ago. However, long duration compliance schedules could undermine these CWA goals, objectives, and mandates, by allowing permitees to effectively suspend NPDES permit compliance for numerous undefined consecutive years.

EPA guidance on this issue further underscores the need for clear limitations on the use of compliance schedules:

> Any compliance schedule contained in an NPDES permit must i*nclude an enforceable final effluent limitation and a date for its achievement* that is within the timeframe allowed by the applicable state or federal law provision authorizing compliance schedules as required by CWA sections 301(b)(1)(C); 502(17); the Administrator's decision in Star-Kist Caribe, Inc. 3 E.A.D. 172, 175, 177-178 (1990); and EPA regulations at 40 C.F.R. §§ 122.2, 122.44(d) and 122.44(d)(I)(vii)(A).[338]

Although, EPA does not expressly state the limitations of the "timeframe allowed," everything in the CWA points to the fact that such schedules should be, at a minimum, attuned to

[338] EPA. 2007. Memorandum from James A. Hanlon, Director of the EPA Office of Water to Alexi Strauss, Director of Water Division EPA Region 9, re: compliance schedules for water quality based effluent limitations in NPDES permits, May 10, 2007

compliance with the CWA, which generally speaking, establishes administration of NPDES permits on a maximum of five year cycles.

B. Compliance schedules should require interim numeric effluent limits in conjunction with narrative limits, when such limits are applicable.

The CWA requires, among other things, that compliance schedules establish clearly enforceable limits. The CWA defines compliance schedules as follows:

> The term "schedule of compliance" means a schedule of remedial measures including an *enforceable* sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard.[339]

For a compliance schedule to be enforceable, it must have clear benchmarks for determining progress; otherwise, attainment with interim limits cannot be assessed, and compliance can only be determined at the expiration of the schedule. If compliance can only be determined upon expiration (meeting a final effluent limit or standard), and compliance is ultimately not achieved, then a discharger could effectively receive "safe harbor" for the entire period of the schedule. This would effectively serve to indemnify dischargers from CWA liability, despite the fact that dischargers are not achieving compliance with standards. To avoid this situation, compliance schedules must utilize numeric interim effluent limits, because they are a simple and transparent way to assess the discharger's progress during the period necessary to achieve compliance. While we understand that there are many instances that narrative limits are appropriately used in development of a compliance schedule and necessary to set deadlines for construction and other actions, such limits must also be combined with numeric limits for the aforementioned reasons to ensure enforceability.

C. Proposed regulations further define the limited circumstances when a compliance schedule applies.

[339] 33 USC sec 1362(17)

Compliance schedules should only be developed "when the designated use is attainable, but the discharger needs additional time to modify or upgrade treatment facilities in order to meet its WQBEL." [340] However, the proposed authorizing language provides that compliance schedules can be used in much broader circumstances. This lack of clear definition of compliance schedules could lead to overuse of this tool, allowing the agency or dischargers to circumvent the application of more rigorous, but legally appropriate pathways. To prevent this, Ecology should clearly distinguish when a compliance schedule versus a variance versus a Use Attainability (UAA) Analysis s applicable. These distinctions will help tribes (and the public) better understand when, and what tools are most likely to apply. Furthermore, better definition of scope will ensure that these tools (variances, compliance schedules, UAA, permit denial) are not overlapping or allowed to be doubled-up, which could result in a severe relaxing of water quality regulation and a lack of water quality protections for treaty-reserved resources. For example, a compliance schedule should not be authorized for the purpose of meeting the limits established by a variance.

D. Compliance schedules should not be authorized for purposes of "conducting studies."

Ecology is proposing that compliance schedules can be applied for the purposes of allowing noncompliance with quality standards for the period of time needed to "complete water quality studies related to implementation of permit requirements to meet effluent limits."[341] EPA has stated that compliance schedules are not appropriate for such measures. For example, EPA has explained that compliance schedules are not available for the sole purposes of developing either TMDLs or UAAs.[342] Therefore, it is only logical that if compliance schedules are inappropriate for developing studies leading to waste load allocations and their subsequent effluent limitations (i.e. TMDLs), then compliance schedules are not appropriate for developing

[340] See EPA. 2014. Water Quality Standards Handbook, available at http://water.epa.gov/scitech/swguidance/standards/handbook/chapter05.cfm#section53

[341] Proposed standards at WA-173-201A-510(4)(a)(iv) available at http://www.ecy.wa.gov/laws-rules/wac173201a/p1203.pdf

[342] EPA. 2007. Memorandum from James A. Hanlon, Director of the EPA Office of Water to Alexi Strauss, Director of Water Division EPA Region 9, re: compliance schedules for water quality based effluent limitations in NPDES permits, May 10, 2007 at 10 and 11.

other “studies” which would contain less accountability mechanisms then a TMDL, but presumably used for a similar purpose of developing effluent limits. Allowing for “studies” to delay attainment of water quality standards sets the stage for circumvention of the CWA, because dischargers could take years to conduct research, while avoiding more specific concrete measures that might otherwise achieve compliance or at the very least progress toward clean water. This does not suggest that research or other studies should be avoided – to contrary, the tribes would encourage Ecology and discharges to undertake the necessary research and studies to advance treatment. However, compliance with standards need not be suspended to complete this work.

E. Ecology should require a transparent demonstration on the record that compliance schedules will achieve attainment with standards in the time allotted.

To ensure that compliance schedules are justified, and consistent with federal and state regulations, Ecology must include a requirement in the proposed rules that all schedules are accompanied by a demonstration that compliance schedules will lead to attainment of water quality standards in the time allotted. Such a justification must be made available to the public. This recommendation is consistent with EPA requirements, where EPA has stated:

> In order to grant a compliance schedule in an NPDES pennit, the pennitting authority has to make a reasonable finding, adequately supported by the administrative record, that the compliance schedule "will lead[] to compliance with an effluent limitation ... " "to meet water quality standards" by the end of the compliance schedule as required by sections 301(b)(I)(C) and 502(17) of the CWA. *See also 40* C.F.R. §§ 122.2, 122.44(d)(1)(vii)(A)[343].

F. The rule amendment extends far beyond the limits provided by RCW 90.48.605, and is therefore not authorized by state law.

[343] EPA. 2007. supra

RCW 90.48.605 directs the department to amend the state's water quality standards to allow compliance schedules in excess of ten years. While these extensions may not necessarily be in compliance with federal law CWA (see above), they do establish a very limited state law basis for extending schedules beyond the preexisting ten-year limit. The state law establishes a four part test for when compliance schedules can exceed ten years.

> Compliance schedules for the permits may exceed ten years if the department determines that:
>
> (1) The permittee is meeting its requirements under the total maximum daily load as soon as possible;
>
> (2) The actions proposed in the compliance schedule are sufficient to achieve water quality standards as soon as possible;
>
> (3) A compliance schedule is appropriate; and
>
> (4) The permittee is not able to meet its waste load allocation solely by controlling and treating its own effluent.[344]

Nothing in RCW 90.48.605 authorizes the department to develop compliance schedules outside the bounds of these limitations. However, the proposed rules establish that compliance schedules can be developed for a duration in excess of ten years without meeting the criteria above. For example, the proposed rules authorize compliance schedules in excess of ten years, without the development of a TMDL, and regardless of whether a permittee is able to achieve compliance by solely treating its own effluent. The above state law was intended to provide additional flexibility for only those limited situations where both point and nonpoint source reductions were simultaneously necessary to achieve compliance with standards, and therefore additional time would be necessary. Therefore, the approach provided for enhanced flexibility under situations where point and nonpoint source pollutant load reductions were clearly prescribed, as established through a TMDL, and it was evident that nonpoint sources controls would be necessary to ultimately bring a water body into compliance. However, the proposed rules ignore the legislatures statutory design that provided only limited flexibility for these special circumstances, and instead provides authorization for extended compliance schedules largely *carte blanche*. Allowing compliance schedules in excess of ten years outside the bounds

[344] RCW 90.48.605

of the legislature's limitations removes the incentive for dischargers and regulators to ensure that appropriate circumstances are in place prior to allowing enhanced flexibility. This approach is neither good public policy nor consistent with state and federal law.

II. Variances

Variances Should Be Limited In Scope, Application, And Duration To Ensure Compliance With The Cwa And Protection Of Treaty-Reserved Resources

A. EPA defines a very limited application of variances – three to ten-year timelines and only for individual permits.

Variances are a concept that is born out agency interpretation of the CWA, and are otherwise not defined, nor even mentioned anywhere in the Clean Water Act. EPA has allowed states to apply variances for the sole purpose of supporting a "State to maintain standards that are ultimately attainable."[345] EPA has provided little guidance to states regarding the contents of variances, but has for the last few decades been very specific about two limitations – duration and scope. Since at least 1990, EPA has maintained that variances should be short in duration, setting a limit of 3 years in length, and that generally they should only apply to an individual NDPES permit. In a 1990 EPA National Assessment of State variance procedures EPA provided:

> In addition to allowing variances based on any of the factors for changing a use, there are two additional operating assumptions. First, variances would not exceed three years, the time frame for the review of water quality standards and the time frame stipulated in 40 CFR 131.20(a) for the review of any water body segment that does not include uses specified in Section 101(a)(2) of the Act, the "fishable/swimmable" uses. Second, variances would be granted to an individual discharger. [346]

EPA has recently proposed federal regulations that potentially extend the acceptable duration of a variance from three years to ten years. [347] EPA also proposes to allow "water body variances," although the exact geographic scope of such a variance is unclear. However, despite this slight expansion in application, EPA's proposed regulations are still substantially narrower

[345] EPA. 1990. National Assessment of State Variance Procedures. Available at http://water.epa.gov/scitech/swguidance/standards/upload/1999_11_03_standards_variancereport.pdf

[346] Id at Introduction

[347] EPA. 2013. Supplemental Information for Water Quality Standards Regulatory Clarifications Proposed Rule. EPA 820-F-13-027, at sec 131.14(b)(iii) available at http://water.epa.gov/lawsregs/lawsguidance/wqs_index.cfm#proposed

than those proposed by Washington, and largely remain true to EPA's initial interpretation, i.e. variances should only be authorized in short term duration and limited geographic scope.

B. Variances may not be legally be authorized under the CWA, and therefore should only be applied under very limited circumstances

As discussed above, there is no mention of variances in the CWA. In 1977, EPA general counsel opined that, because the CWA used the terminology "*wherever attainable*, water quality provide for the protection and propagation of fish, shellfish, etc…" that therefore, the CWA must also provide for situations when those goals were not attainable. The same EPA Office of General Counsel legal opinion considered the practice of temporarily downgrading the WQS as it applies to a specific permittee rather than permanently downgrading an entire water body or waterbody segment(s) and determined that such a practice is acceptable as long as it is adopted consistent with the substantive requirements for permanently downgrading a designated use. EPA further explains that:

> a state may change the standard *in a more targeted* way than a designated use change, so long as the state is able to show that achieving the standard is "unattainable" for the term of the variance. [348]

To this day, this legal opinion forms the basis for variance programs, and lends itself to two important observations. First, variance programs are supposed to be distinguished from a use downgrade in that they temporarily change standards in a more targeted way. Second, the entire premise of a variance is based on EPA interpretation of two words: "wherever attainable."

Absent express authorization under the CWA, the legality of variances is suspect, and application of the program should be reconsidered, or at a minimum should be applied in extremely limited circumstances. Authorization of a program that allows dischargers to violate

[348] EPA. 2013. Discharger-specific Variances on a Broader Scale: Developing Credible Rationales for Variances that Apply to Multiple Dischargers, EPA-820-F-13-012. Avaiable at http://water.epa.gov/scitech/swguidance/standards/upload/Discharger-specific-Variances-on-a-Broader-Scale-Developing-Credible-Rationales-for-Variances-that-Apply-to-Multiple-Dischargers-Frequently-Asked-Questions.pdf

existing water quality standards should be firmly grounded in explicit statutory direction, and currently neither statute nor subsequent rules provide the authorizing environment for such deviations from CWA compliance. Despite subsequent EPA approvals of variances, EPA also appears to have come to similar conclusions -- the early application of variances, although authorized, were encouraged to be of very limited scope and duration. Variances were only at the individual discharger scale and for a limited time period of three years.

C. The definition of a variance should limit the duration – include requirement for expiration and limit duration between 3 and 10 years.

Proposed variance regulations should be consistent with EPA's earlier guidance on the matter, and limit the duration. In order to comply with federal regulations, variances must be required to include a date of expiration, and the duration of any given variance should be limited between three and ten years.[349] Ecology proposed rule language denotes variances as "temporary," but provides no such direction as to the length of time that constitutes temporary. Ecology's regulations also fail to require that all variances contain a date of expiration.[350] Therefore, it is recommended that definitional language or subsequent eligibility criteria include limitations on the duration and require an expiration date.

Variances that are allowed to be open ended, whether by process of continual renewal or failure to set a date of expiration, do not fall within the limited EPA interpretation of the CWA to be a temporary and targeted change in the criteria for the term of the variance. Moreover, variances durations that extend for generations in length (e.g. 20, 30, or 40 years) are not temporary, because they set in place a less stringent standard of protection for such an excessive length of time that it is likely to normatively effect institutions. Also, discharging at levels known to violate water quality standards for extensive periods of time is likely to impact designated uses to such an degree that the long term effects on the use may in fact be permanent. This is counter to the intent of variances, i.e., variances are intended to prevent permanent downgrade in use, not effectively encourage them. As such, long-term variances

[349] EPA. 2013. Supplemental Information for Water Quality Standards Regulatory Clarifications Proposed Rule. EPA 820-F-13-027, at sec 131.14(b)(iii) available at http://water.epa.gov/lawsregs/lawsguidance/wqs_index.cfm#proposed

[350] See Ecology proposed variance regulations at WAC 173-201A-420(5)

are inconsistent with both the CWA and the states anti-degradation procedures, and therefore should not be authorized.

D. Variance definition should be changed to be consistent with proposed federal regulations

According to EPA, a variance does not replace a waterbody's designated use, but instead merely provides a temporary standard while still preserving the underlying use.[351]. In recent guidance, EPA affirmed this belief stating, "the interim requirements do not replace the designated use and criteria for the water body as a whole."[352] However, proposed Ecology rules define variances differently than EPA, suggesting that a variance is a "modification to the designated use *and* associated water quality criteria based on the factors specified in 40 C.F.R. 131.10(g)."[353] This is problematic because it sets the stage for suspending protections of the use, instead of merely establishing interim criteria. It is recommended to that the proposed variance definition should be amended to reflect that the underlying use is preserved.

E. Variances should not apply for purposes of implementing section 303(d) of the Clean Water Act.

According to recent EPA guidance, variances are only intended to apply to section 401 water quality certifications and 402 NPDES permits of the CWA. As discussed above, since a variance is intended to preserve the underlying designated use, CWA programs such as 303(d) listing should still be based the underlying use, and not the interim criteria, i.e., the variance. EPA has clearly stated, "any implementation of CWA section 303(d) to list impaired waters must continue to be based on the designated uses and criteria for the waterbody rather than the interim requirements."[354] EPA proposed regulations on variances further underscore that variances should not apply for purposes of TMDL development or 303(d) listing.

---

[351] See EPA proposed variances regulations at 40 CFR 131.14(a)(2)(i) available at http://water.epa.gov/scitech/swguidance/upload/Supplemental-Information-Comparison-of-Existing-Rule-Language-and-Proposed-Rule-Language.pdf

[352] EPA. 2013. Discharger-specific Variances on a Broader Scale: Developing Credible Rationales for Variances that Apply to Multiple Dischargers, EPA-820-F-13-012. Available at http://water.epa.gov/scitech/swguidance/standards/upload/Discharger-specific-Variances-on-a-Broader-Scale-Developing-Credible-Rationales-for-Variances-that-Apply-to-Multiple-Dischargers-Frequently-Asked-Questions.pdf

[353] Ecology proposed rules at WAC 173-201A-020 emphasis added

[354] EPA. 2013. supra

> The interim requirements specified in the WQS variance are in effect during the term of the WQS variance and apply for CWA section 402 permitting purposes and in issuing certifications under section 401 of the Act for the permittee(s), pollutant(s), and/or water body or waterbody segment(s) covered by the WQS variance.[355]

Therefore, Ecology rules should clearly state that variances do not apply to section 303 programs such as the impaired waters listings and TMDLs.[356]

F. Variances must only apply to individual dischargers

Variances create a potential conflict in that they propose to change the criteria responsible for protecting uses, while still maintaining that the existing underlying use is preserved. This conflict is brought to light when variances are so broad in scope that they apply to entire waterbodies instead of individual dischargers, because a proposed change to a waterbody's numeric (or conceivably narrative) criteria effectively changes what uses will and will not be protected. However, EPA guidance maintains that the underlying uses should not changed, even though uses and criteria are so interrelated that a change to one, will by virtue of the statutory construction of the CWA, effect the other. The only conceivable way to avoid this potential conflict - where a variance alters both the use and the criteria – is to limit the scope of the variance to individual dischargers, consistent with EPA's earlier guidance on the subject. In this manner, variances will only apply to WQBEL for a specific parameter, and need not temporarily change the underlying uses, which apply to the waterbody. This simple and straightforward approach will allow Ecology to avoid setting the stage for legal conflicts, which would eventually only add to confusion for the both the discharger and the public.

G. Ecology should include variance eligibility requirements to ensure that variances do not violate other state and federal regulations or impair treaty rights

---

[355] EPA. 2013. Supplemental Information for Water Quality Standards Regulatory Clarifications Proposed Rule. EPA 820-F-13-027, at sec 131.14(a)2(ii) available at http://water.epa.gov/lawsregs/lawsguidance/wqs_index.cfm#proposed

[356] EPA. 2013. Discharger-specific Variances on a Broader Scale: Developing Credible Rationales for Variances that Apply to Multiple Dischargers, EPA-820-F-13-012. Available at http://water.epa.gov/scitech/swguidance/standards/upload/Discharger-specific-Variances-on-a-Broader-Scale-Developing-Credible-Rationales-for-Variances-that-Apply-to-Multiple-Dischargers-Frequently-Asked-Questions.pdf

Ecology rules for variances should include a section detailing limitations on eligibility, to avoid potential conflict of laws or situations where subsequent variance approvals will harm resources. Eligibility requirements are also a simple way to communicate to variance applicants that there are other statutory and common law considerations that Ecology and EPA must consider. It also clearly establishes further limitations to avoid conflict of laws. The following are suggestions for eligibility requirements that other states have also applied to their variance requirements:

- Variances may not jeopardize ESA-listed species or critical habitat
- Variances may not impair treaty-reserved rights and resources.
- Variances may not result in unreasonable risk to human health or environment
- Variances may not impair an existing use
- Variances must comply with antidegradation requirements
- Variances may not impair downstream tribal waters

H. Variances rules should require that notice of a variance application and all subsequent actions are given to all affected tribes – not just tribes with water quality standards.

Proposed rules require notice to only those tribes with water quality standards. However, all of the NWIFC member treaty tribes have a right to co-manage treaty-reserved resources regardless of whether they have adopted water quality standards. Therefore, variance regulations should require notice to all affected tribes.

I. Variances that address nonpoint sources must include an enforceable mechanism ensure compliance with water quality standards.

Ecology proposed rules provide for documentation of the BMPs for nonpoint sources. However, Washington currently lacks approved BMPs and an adequate program to ensure their implementation consistent with the requirements of WAC 173-201A-510.

In order to retain compliance with the CWA, variances must contain enforceable limits. To the extent the BMPS are required as a limit for nonpoint sources, those limits need to be accompanied by clear-cut enforceable mechanisms and a demonstration of how the selected BMPs will achieve compliance with water quality standards. Without enforceable mechanisms,

BMPs, variances, and ultimately water quality standard compliance will have no accountability for being achieved within the time frame allotted. Ecology should further expand upon how BMPs for unpermitted dischargers will take effect, be designed to meet water quality standards, and ultimately enforced.

J. Proposed regulations must require that variances establish numeric criteria for the "highest attainable condition during the specified time period

To ensure consistency with the federal regulations, Ecology proposed rules must require that variances establish numeric criteria which represents the "the highest attainable condition during the specified time period."[357] Without these numeric benchmarks, variances will lack assurances of being set to at levels that best protects the underlying use, and is as close as possible to protecting previously established water quality standards.

K. Variance renewals should not be authorized and interim reviews should be subject to EPA review and public process.

Per EPA guidance, variances are supposed to "expire" by their specified date, and therefore should not be subject to renewal. Variance renewal sets the stage for continual perpetuation of a variance, which is counter their very definition, i.e. they are supposed to be temporary in nature. Therefore, variance rules should prohibit both administrative extensions and renewals.

Additionally, variance rules propose Ecology internal reviews, which lack transparency and public process. These administrative check-ins, although helpful, further set the stage for extending variance durations from short to long term, because they circumvent full public and EPA review of variance progress, and instead substitute internal process which goes largely unobserved by the public or tribes. Because variances authorize CWA noncompliance, they should be coupled with enhanced accountability to ultimately ensure progress, and eventual attainment of standards. Such an approach is more consistent with the spirit and letter of Washington's Administrative Procedure Act.

[357] EPA. 2013. Supplemental Information for Water Quality Standards Regulatory Clarifications Proposed Rule. EPA 820-F-13-027, at sec 131.14 available at http://water.epa.gov/lawsregs/lawsguidance/wqs_index.cfm#proposed

L. Variances must include requirements for dedicated monitoring and funding to implement it.

In order to ensure enforceability, engage adaptive management, and observe progress, variances will need to require extensive water quality, effectiveness, and implementation monitoring. In the case of toxics, such monitoring can be expensive, and therefore is likely to go unimplemented due to cost. Moreover, existing state ambient monitoring is not comprehensive enough to ensure adequate oversight is maintained. Therefore, variance requirements need to establish mandatory monitoring and assurances of funding as a means to guarantee ongoing observation of progress. Without such monitoring data, enforcement and adaptive management will be impossible, rendering the variance a mere paper tiger, which will fail to achieve its ultimate objectives – attainment of standards in the time allotted.

III. Intake Credits

The Use And Application Of Intake Credits Should Be Further Refined And Narrowed To Ensure That Credits Are Only Applied To Circumstances That Will Not Cause Or Contribute To Violations Of Water Quality Standards Or In Any Way Increase The Pollutant Level Of Downstream Tribal Waters.

A. The proposed definition and regulations are overbroad and lacks terminology that will define the appropriate scope of use.

Ecology's proposed language provides:

> **"Intake credit"** is a procedure for establishing effluent limits in waste discharge permits issued pursuant to the National Pollutant Discharge Elimination System that take into account the amount of a pollutant that is present in public waters, at the time water is removed from the body of water by the discharger or other facility supplying the discharger with intake water.

To avoid potential violations of water quality standards, intake credits should be limited to the following circumstances:

- The facility does not add the intake pollutant of concern
- The facility does not alter the intake pollutant chemically or physically
- When intake of the pollutant of concern comes from the same surface body of water from the immediate vicinity of the discharge.
- When the intake credit is used to demonstrate *compliance with* effluent limitations, as opposed to avoiding the setting of effluent limitations through the Reasonable Potential Analysis review.

The proposed definition for intake credits is overbroad in that it allows the application of intake credits to the development of both technology based effluent limits (TBEL), water quality based effluent limits (WQBEL) and Reasonable Potential Analysis (RPA). It also does not adequately define what bodies of water intake and subsequent discharge can come from. Therefore, further refinement of the definition and subsequent criteria are recommended as follows.

1. Definitions and subsequent regulations should prohibit use of intake credits in the RPA.

Federal regulations provide that intake credits should only apply to TBELs.[358] Additionally, intake credits should <u>not</u> apply to the RPA, because they should generally not be used as procedure to avoid triggering effluent limitations, but instead used solely as a means to demonstrate compliance with end of pipe standards under very limited circumstances. If intake credits are allowed for the RPA, then they could be used to circumvent the development WQBEL, and therefore avoid permit limits that would otherwise help control the discharge of pollutants or at a minimum transparently document that facilities are potential contributors. For example, the RPA should carefully consider and document whether a facility was also adding the pollutant of concern to a water body, in additional to that which was in the intake. If the facility is discharging the pollutant of concern, that discharge should be publically documented through the assignment of an effluent limitation. Documentation of an effluent limitation is a transparent way of establishing that the facility also introduces and subsequently discharges the pollutant of concern. Moreover, establishing effluent limitations is an important part of adaptively managing pollutant loading in a watershed through subsequent efforts such as TMDLs. When pollutant loading from NPDES permits is not documented in an effluent limitation, facilities may be overlooked in the TMDL process. For example, a facility's roll in overall pollution reduction could be overlooked in a TMDL analysis, if they were not clearly documented as a facility generating a pollutant of concern. This could then result in a facility failing to reduce overall loading on par with the rest of the watershed's allocations. Ecology, appears to share similar concerns in their Key Decision Overview Document, where they stated:

> Intake credits do not alter the permitting authority obligations under 40 CFR 122.44(d)(vii)(B) to develop effluent limitations as

[358] 40 CFR 122.45(g)

part of a TMDL prepared by the state department and approved by EPA as outlined in 40 CFR 130.7. [359]

However, despite these concerns, as explained above, proposed rules authorize credits in situations that could run afoul of the federal regulations Ecology points to, by allowing intake credits to be used to circumvent establishment of a WQBEL in the RPA process.

2. Definitions and subsequent regulations must prohibit the application of intake credits when intake water is taken from groundwater and discharged to surface water.

The proposed rules allow groundwater to count as part of an intake credit when "the department determines that the pollutant would have reached the vicinity of the outfall point in the receiving water within a reasonable period had it not been removed by the permittee." However, groundwater often contains different chemical makeup than surface waters, including higher presence of some chemicals such as arsenic, and the flow and rate at which these waters may have reached the surface water is likely altered by the withdrawal from ground and subsequent discharge to surface waters. Additionally, the point of withdrawal and discharge are likely to have an effect on surface water quality and therefore discharges should not be given *carte blanche* to apply the intake credit simply because the ground water will *eventually* reach the surface water at some point and time. Neither, Ecology nor the dischargers should be afforded such broad discretion to determine what a "reasonable period" or the geographic scope of the "vicinity" is, regarding timing, flow or geographic distance from withdrawal to discharge. Since the rule lacks general guidance on this matter, and such withdrawals present a likelihood of violating water quality standards, we recommend prohibiting groundwater withdrawals from the use intake credits.

[359] Ecology. 2015. Washington Water Quality Standards: Human health criteria and implementation tools Overview of key decisions in rule amendment. September 2014 Preliminary Draft Publication no. available at http://www.ecy.wa.gov/programs/wq/swqs/Decisionmemos923.pdf

B. Deletions are recommended in section (2) to further refine application of intake credits and prevent violation of the Clean Water Act

1. Delete or amend section 460(2)(a)(vi)

The proposed rules allow for facilities to add pollutants of concerns and still remain eligible for intake credits:

> (vi) For the purpose of determining water quality-based effluent limits; the facility does not increase the identified intake pollutant concentration at the point of discharge as compared to the pollutant concentration in the intake water. A discharger may add mass of the pollutant to its waste stream if an equal or greater mass is removed prior to discharge, so there is no net addition of the pollutant in the discharge compared to the intake water.

This provision has the effect of limiting treatment of the pollutant of concern to levels identified in the intake, instead of setting treatments at the levels required by the CWA; e.g.,TBEL and subsequently WQBEL, determined necessary for compliance with water quality standards. If the facility has the capability to remove mass of the pollutant from the discharge, then that capability should maximized to the extent provided by law. Dischargers should not be allowed to relax removal efficiencies merely because presence of the pollutant in the intake affords them the opportunity. Such as approach would be inconsistent with the CWA, and therefore it should be omitted. However, we would like to note that this provision as currently written is limited to development of WQBELs and is not available for use in RPA. Given the concerns stated above we would agree with Ecology that intake credits, especially when the pollutant of concern is added by the facility, should not be available for purposes of the RPA.

2. Delete section 460(2)(c)

Section 460(2)(c) proposes:

> (c) Where intake water for a facility is provided by a municipal water supply system and the supplier provides treatment of the raw water that removes an intake water pollutant, the concentration of the intake water pollutant will be determined at the point where the water enters the water supplier's distribution system.

Washington proposes to allow dischargers to get an intake credit for the intake pollutant present prior to removal by a municipal water supply treatment, even though discharger receives water from municipal system after it is treated, and the pollutant is no longer present, or present at concentrations that the dischargers are seeking credit for. This provision provides a pollution allowance for a pollutant that is not present in the “intake” of the discharger.

Therefore, there is no basis for providing for such an allowance in the CWA or federal regulations, because the pollutant is not an element of the so-called background.[360] Allowing intake credits for this purpose essentially allows permitees to fabricate credits for pollutants that do not even pass though the facility. Intake credits must only be allowed for pollutants that merely pass through a facility without either an addition or alternation of the physical and chemical proprieties of the pollutant. As currently written this provision could help dischargers circumvent WQBEL development, because the extra allowance could be used to offset pollutants added at the facility site and thereby avoid triggering the requirement for an effluent limitation in Reasonable Potential Analysis. It could also be used to set less protective effluent limitations, because the facilities would be given credit for the discharge of a pollutant, even though the pollutant was actually added *after* intake. Such an approach violates the prohibition on the discharge of pollutants CWA.[361]

3. Delete section 460(2)(d)

Washington proposes to allow the use of intake credits when intake water is mixed with other sources of intake water that is not from the same body of water as defined in 460(1). The rule provides that the department "may derive an effluent limit reflecting the flow weighted amount of each source of the pollutant." This section potentially allows intake credits to apply to intake waters other than those that are from the "same body of water," and therefore is inconsistent with the general provision provided in section 1 that prohibits intake credits applied to waters that are not hydrologically connected (see also issues regarding this provision above). Although Ecology proposes the use of flow-weighting as means to attempt to account for only those pollutants from the same water body, the reality is that these calculations can only provide rudimentary estimations of pollution intake, especially when considering the complexity of accounting for toxics which are often present at low concentrations and are difficult to detect. Also, it is unlikely that flow weighted calculations will capture the changes in intake flow over the course of the five year permit cycle, or seasonal/yearly variations in the pollutant concentrations. The result is that it is likely, if not certain, that co-mingling of waters and pollutants are likely to occur, which will not easily be accounted for. This introduces potential for discharge of unpermitted pollutants (from other waters), which are inconsistent

[361] See 33 USC sec 1311 and 1342.

with the act and federal regulations.[362] Moreover, the added complexity is likely to obfuscate the crediting process, making it more difficult for the public to track the use of the credits. Ultimately, the provision makes the development of WQBEL more complex makes the use of intake credits less transparent and more difficult for the public or permit reviewers to understand, and introduces more opportunity for mathematical error or inaccurate representations of pollutant loading, which may lead to unpermitted discharges in violation of the Act.

C. TMDLS development must be required prior to allowing intake credits for discharges into 303(d) listed waters.

When receiving waters are polluted, it is important that extra scrutiny is applied to facilitate cleanup, and provide accountability that NPDES permits are not contributing to the problem. Under the CWA, TMDL development is the process by which this occurs.

Permit tools which provide discharges enhanced flexibility from federal regulations - such as intake credits - should not apply under circumstances when receiving water are not in compliance with CWA standards and are in need of pollutant reductions, i.e., they are listed as category five on the 303(d) list of impaired waters. Tools such as intake credits should be limited in these circumstances, because they may authorize dischargers to perpetuate status quo conditions. The situation to avoid is where the polluted waters in need of reductions are considered background pollutants in the intake, and therefore are used as the basis for avoiding effluent limitations, when in fact the CWA requires the opposite for 303(d) listed streams – a thorough analysis and assigned loading reductions via development of a TMDL, waste load allocations and eventually new WQBELs. Therefore, before assigning new permit limits using intake credits, Ecology should undertake the CWA TMDL process. Using this approach, Ecology will have a better informational foundation by which to judge whether an intake credit will ultimately impact downstream designated uses or cause or contribute to a violation of water quality standards.

In sum, intake credits should not be allowed for pollutants that are also listed as impairing the receiving waters (as demonstrated on the 303(d) list of impaired waters), until after a TMDL is conducted, and the appropriate waste load allocations have been assigned and translated into effluent limitations.

[362] See sect 1311; see also 40 CFR 122.44 and 122.45

D. Documenting, reporting, and transparency requirements should be included when intake credits are applied

To ensure that intake credits are applied in transparent manner, proposed regulations should include requirements that NPDES permits clearly indicate:

- The application of an intake credit to development of a effluent limit
- The pollutant parameter(s) to which the credits are applied
- The basis for the determination

Additionally, all calculations and justifications for credits should be included as part of the NPDES permits record, and should be easily accessible to the public.

APPENDICES

FCR Description of Terms

PCB materials (2)

Additional supporting documentation (electronically)