UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

MAY 3 1 2017

Nina Bell, J.D., Executive Director
Northwest Environmental Advocates
P.O. Box 12187
Portland, Oregon 97212-0187

Re: Final Response to Petition for Rulemaking on Water Quality Criteria for Toxics in the State of Washington

Dear Ms. Bell:

The U.S. Environmental Protection Agency (EPA) is issuing this final response to your petition dated October 28, 2013, which we considered in addition to your follow up letters dated August 31, 2015, February 9, 2016, and February 21, 2017. Your petition requested that the EPA use its federal rulemaking authority under Clean Water Act (CWA) section 303(c)(4)(B) to update water quality criteria for toxics to protect human health and aquatic life in Washington. Specifically, your petition, as revised, requests that the EPA promulgate human health criteria for arsenic, thallium and dioxin, as well as update Washington's aquatic life criteria as necessary to meet the requirements of CWA section 303(c)(2)(B).

The EPA provided an interim response on May 4, 2016 notifying Northwest Environmental Advocates (NWEA) of the steps the EPA was taking towards addressing Washington's human health criteria and asking a series of follow up questions regarding Washington's aquatic life criteria. NWEA provided a response to this interim letter on February 21, 2017.

The EPA is now denying your petition based on the rationale articulated below. We do not believe that the use of federal rulemaking authority is the most effective or practical means at this time of addressing the concerns raised in NWEA's petition.

Statutory and Regulatory Background

CWA section 101(a)(2) (33 U.S.C. 1251(a)(2)) establishes as a national goal "water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water, wherever attainable." CWA section 303(c) (33 U.S.C. 1313(c)) directs states to adopt water quality standards (WQS) for their waters subject to the CWA. CWA section 303(c)(2)(A) and the EPA's implementing regulations at 40 CFR part 131 require, among other things, that a state's WQS specify appropriate designated uses of the waters, and water quality criteria that protect those uses. The EPA's regulations at 40 CFR 131.11(a)(1) provide that "[s]uch criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use."

Under the CWA, Congress gave states primary responsibility for developing and adopting WQS for their waters. It remains the EPA's strong preference to support states in their development of WQS to protect state waters rather than to promulgate federal WQS.

Under CWA section 304(a) (33 U.S.C. 1314(a)), the EPA periodically publishes criteria recommendations for states to consider when adopting water quality criteria for particular pollutants to protect the CWA section 101(a)(2) goal uses. Where the EPA has published recommended criteria, states should establish numeric water quality criteria based on the EPA's CWA section 304(a) criteria, section 304(a) criteria modified to reflect site-specific conditions, or other scientifically defensible methods (40 CFR 131.11(b)(1)). Criteria must be sufficient to protect the designated use and be based on sound scientific rationale (40 CFR 131.11(a)(1)).

CWA section 303(c)(2)(B) requires states to adopt numeric criteria for all toxic pollutants listed pursuant to CWA section 307(a)(1) (33 U.S.C. 1317(a)(1)) for which the EPA has published 304(a) criteria, where the discharge or presence of those pollutants could reasonably be expected to interfere with a state's designated uses. From the list of toxic pollutants identified pursuant to CWA section 307(a)(1), the EPA developed the Priority Pollutant List, which describes the toxic pollutants by their individual chemical names.[1] There are 126 Priority Pollutants; the EPA has section 304(a) aquatic life and/or human health criteria recommendations for 105 of those 126 pollutants.

Section 303(c)(4)(B) of the CWA authorizes the EPA Administrator to determine that a new or revised WQS is needed to meet CWA requirements. The EPA has used its discretionary authority under CWA section 303(c)(4)(B) to promulgate water quality criteria and retains its discretion to use it, as appropriate. Nonetheless, the EPA's long-standing policy, consistent with the CWA, has been that states should develop and adopt standards in the first instance.

Human Health Criteria in Washington

On August 1, 2016, the Washington State Department of Ecology (Ecology) submitted human health criteria to the EPA. On November 15, 2016, the EPA took action approving 45 human health criteria and signed a notice of final rulemaking promulgating 40 CFR 131.45 that revised 144 additional human health criteria applicable to Washington's waters, which became effective December 28, 2016. The combination of the EPA's action on Washington's submittal, and the EPA's federal rule applicable to Washington, ensures that Washington has numeric human health criteria for all priority pollutants for which 304(a) recommendations are available, consistent with CWA section 303(c)(2)(B).

The EPA disapproved the state's submitted human health criteria for arsenic, which were based on the Safe Drinking Water Act (SDWA) maximum contaminant level (MCL). In addition, the EPA took no action to approve or disapprove Ecology's human health criteria submitted for thallium and dioxin due to scientific uncertainty. Given the current uncertainty regarding aspects of the science upon which human health criteria for arsenic, dioxin, and thallium are based, the EPA did not finalize revised criteria for these three pollutants in its final rule. For those pollutants where the EPA did not approve or promulgate revised human health criteria (i.e., arsenic, dioxin and thallium), the existing criteria from the EPA's 1992 National Toxics Rule (NTR) remain in effect for CWA purposes.[2]

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[1] https://www.epa.gov/eg/toxic-and-priority-pollutants-under-clean-water-act

[2] The EPA moved Washington's existing arsenic, dioxin and thallium criteria from the NTR into 40 CFR 131.45 to have one comprehensive human health criteria rule for Washington.

As the EPA explained in its 2016 federal rule[3] and action on Washington's human health criteria,[4] the Integrated Risk Information System (IRIS) was the primary source of toxicity values (i.e., reference dose (RfD) and cancer slope factor (CSF)) for the EPA's 2015 updated CWA section 304(a) human health criteria recommendations. For thallium, the EPA's IRIS database does not currently contain an estimate of thallium's toxicity (i.e., a RfD).[5] For dioxin, IRIS does not currently contain a measure of dioxin's cancer-causing ability (i.e., a CSF).[6] Without such values, the EPA concluded that further analysis is necessary in order to promulgate scientifically sound revised criteria for these two pollutants. For arsenic, there is uncertainty surrounding the toxicological assessment with respect to human health effects. The EPA's current plan for addressing the arsenic issues is described in the *Assessment Development Plan for the Integrated Risk Information System (IRIS) Toxicological Review of Inorganic Arsenic* (EPA/630/R-14/101, November 2015). The EPA noted in the preamble to the final Washington rule (Section III, p. 85,421), that it intends to reevaluate the existing federal arsenic, dioxin and thallium human health criteria for Washington by 2018, with particular consideration of any relevant toxicity and bioaccumulation information. This timeframe is consistent with the dates outlined in a consent decree between the EPA and NWEA to address human health criteria for arsenic in Idaho, and a settlement agreement between the EPA and the Idaho Conservation League to address human health criteria for dioxin and thallium in Idaho.

At this time, the combination of the EPA's federal rule and the EPA's action on the state's submittal ensures that the human health criteria are set at levels consistent with the best available science, including local and regional information, as well as the EPA's applicable policies, guidance, and legal requirements, to protect Washington fish consumers from exposure to toxic pollutants. Since the NTR criteria for thallium, dioxin and arsenic remain in effect in Washington for CWA purposes, and additional scientific information on these three pollutants is forthcoming to inform the EPA's reevaluation by 2018, the EPA denies NWEA's petition for rulemaking for these three pollutants.

Aquatic Life Criteria in Washington

The EPA acknowledges that Ecology has not updated the majority of Washington's aquatic life criteria since the 1992 NTR and that it is important for states and tribes to review the latest science, including the EPA's national 304(a) criteria recommendations, and update criteria in a timely manner. Ecology's Strategic Plan for 2015-2020 includes commitments to update the state's aquatic life criteria.[7] However, due to the state's extensive effort to update its human health criteria and associated implementation provisions, Ecology has not yet initiated a rulemaking to adopt new and revised aquatic life criteria.

As explained above, the EPA has been working for the past several years with Ecology to support the state's adoption of human health criteria to protect fish consumers in Washington. Adoption of revised human health criteria is one of several priority actions and approaches that the EPA recommends states and tribes carry out in their WQS programs in fiscal years 2017 and 2018.[8] Other EPA-recommended priorities include assuring compliance with the EPA's new WQS regulations at 40 CFR part 131 (which Washington also did in conjunction with its human health criteria updates, with respect to variances and

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[3] https://www.gpo.gov/fdsys/pkg/FR-2016-11-28/pdf/2016-28424.pdf

[4] https://www.epa.gov/sites/production/files/2016-11/documents/epas_partial_approvalpartial_disapproval_wa_hh_wqc_impl_tools_bellon_ltr_enclosures_508c.pdf

[5] http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showQuickView&substance_nmbr=1012.

[6] http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showQuickView&substance_nmbr=1024.

[7] See page 11: http://www.ecy.wa.gov/programs/wq/WQStrategicPlan2015-2020.pdf

[8] See Priorities for Water Quality Standards and Criteria Programs, FY 2017-2018. U.S. EPA Office of Science and Technology. April 21, 2016. https://www.epa.gov/sites/production/files/2016-02/documents/wqs_priorities_draft_022616_508.pdf

compliance schedules); considering the EPA's most recent section 304(a) criteria for bacteria (for human health) and ammonia (for aquatic life); expanding efforts to establish numeric criteria for nutrients, biocriteria and toxics; improving online public access to EPA-approved WQS; addressing implementation as part of the WQS development process; and taking into account the EPA's guidance on downstream protection and natural conditions.

The EPA has encouraged Washington to prioritize revising its aquatic life criteria for ammonia and human health criteria for bacteria.[9] Based on preliminary conversations with the state, the EPA's understanding is that Washington intends to turn its focus to revising its bacteria criteria. Additionally, the EPA has informed Washington of the efforts of other Region 10 states and tribes who have either adopted or are seeking to adopt the EPA's section 304(a) recommended criteria for copper, the copper Biotic Ligand Model (BLM), given copper's adverse impact on salmonids, which include critically important and endangered species throughout the Pacific Northwest. To help encourage adoption of the copper BLM, the EPA held a workshop in Seattle in 2015 to discuss implementation considerations associated with the copper BLM. Washington officials attended the workshop, and the EPA expects that Washington will use information gleaned from Oregon's adoption of the BLM in 2016 and Idaho's on-going efforts to adopt the BLM to inform Washington's own adoption of the BLM. However, it is possible that in further discussions with Washington, other pollutants may emerge as higher priorities for the state. The EPA's general policy is to work with states on priority-setting in a manner that is consistent with the statutory process envisioned under CWA sections 101(b) and 303(c)(3). This approach enables the EPA and states to work in partnership to efficiently and effectively allocate resources to address pollution and accelerate state adoption of new and revised criteria.

The EPA notes that for a substantial fraction of Washington's other existing aquatic life criteria, the corresponding recently updated human health criteria are more stringent. Because waters in the state of Washington are protected for both human health and aquatic life uses, these more restrictive human health criteria are currently driving pollutant controls, and revising aquatic life criteria for the same pollutants is unlikely to result in changes to water quality. Additionally, some of Washington's existing aquatic life criteria are already more stringent than the corresponding section 304(a) recommended criteria.

For those pollutants for which Washington's aquatic life criteria may be less stringent than the corresponding aquatic life section 304(a) recommendations and for which Washington's applicable human health criteria are less stringent than its applicable aquatic life criteria, the EPA maintains that Washington should prioritize revisions to those criteria if those pollutants can be expected to interfere with the state's designated uses. In 2015, the EPA revised its implementing regulations at 40 CFR 131.20(a) to require that if states choose not to adopt new or revised criteria during their triennial review for any pollutants for which the EPA has published new or updated criteria recommendations under CWA section 304(a), they must explain their decision when reporting the results of their triennial review to the EPA under CWA section 303(c)(1) and 40 CFR 131.20(c).

NWEA noted in its petition certain biological opinions issued by the National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (FWS) for nearby states that found that the federal action of approving those state WQS for certain pollutants would cause jeopardy. NWEA points out that these opinions covered the same or similar species as are present in Washington. While the EPA agrees that the results of these consultations are potentially informative to guide Washington's prioritization of

[9] USEPA. May 16, 2014. "Re: U.S. Environmental Protection Agency 304(a) Recommendations for Ammonia and Recreational Criteria." Letter from Dan Opalski, Director of the EPA's Region 10 Office of Water and Watersheds to Heather Bartlett, Water Quality Program Manager, Washington Department of Ecology.

criteria development, these opinions are referencing assumed pollutant concentrations and species may not be currently exposed to those levels in the environment. Additionally, even in the context of NMFS and FWS evaluating a proposed federal action (not present here, since it is the petitioner that is proposing action), NMFS and FWS indicated in their biological opinions that it was reasonable to allot a certain period of time (up to 8 years, for some pollutants) for the EPA or the state to develop revised criteria.

For these reasons and the other considerations described below, the EPA denies NWEA's petition to update Washington's aquatic life criteria.

Other Considerations

NWEA's petition often cites CWA section 303(c)(2)(B) in arguing that the EPA is presumptively required to establish or revise certain aquatic life water quality criteria for priority pollutants in Washington, simply to ensure that Washington criteria match the EPA's national scientific recommendations. But petitioners misconstrue the significance of CWA section 303(c)(2)(B) to their petition (i.e., as establishing a duty for the EPA to either initiate the requested rulemaking or satisfy the petitioner that rulemaking is not warranted). While the EPA has cited CWA section 303(c)(2)(B) as authority for the EPA to make a determination under section 303(c)(4)(B) for certain priority pollutants without first collecting "water body-by-water body" evidence 65 FR 31685, 31687 (2000), in this case the petitioner nonetheless retains the burden of justifying the action sought in the petition, by demonstrating why a new or revised standard is necessary to meet the requirements of the CWA. On May 4, 2016, the EPA suggested NWEA fill several data gaps to assist the Agency in better understanding the basis for the administrative relief NWEA was seeking through its petition, and why updates to Washington's aquatic life criteria for toxics should be a higher priority than any of the other WQS program activities that the EPA recommended Washington prioritize. The EPA's questions were material to the disposition of the petition: they were meant to clarify the factual support for NWEA's contention that current water quality criteria for aquatic life are insufficient to protect Washington's designated uses. In the EPA's view, NWEA is indeed the proponent of its own petition, which includes providing the evidence to substantiate the arguments made in the petition that the EPA should exercise discretionary authority under CWA section 303(c)(4)(B). However, in its February 21, 2017, response, NWEA largely declined to do so, asserting either that the information sought was irrelevant or that it was the EPA's responsibility to fill relevant data gaps underlying NWEA's petition arguments.

In addition, the requirements of CWA section 303(c)(2)(B) have already been met for the priority pollutants for which Washington has numeric criteria. With respect to acrolein (the one priority pollutant for which Washington lacks numeric aquatic life criteria even though the EPA has developed numeric recommendations), the petition does not set forth an argument for why the discharge or presence of acrolein could reasonably be expected to interfere with Washington's designated uses. Furthermore, Washington's human health criteria for acrolein are more stringent than the EPA's national section 304(a) recommended aquatic life criteria for acrolein.

Finally, NWEA's petition refers to concerns raised by NMFS in connection with the Industrial Stormwater General Permit (ISGP). The EPA notes that NMFS commented on the ISGP that was effective 2010-2015, but neither NMFS nor FWS commented on the more recent ISGP which became effective in 2015.

Conclusion

In closing, we would like to thank you for your concerns related to human health and aquatic life toxics criteria in Washington. For the above reasons, and after careful consideration of the issues you raised and

actions you requested, the EPA is hereby denying the petition. In taking this action, the EPA is not determining that new or revised aquatic life criteria, and revised human health criteria for arsenic, dioxin and thallium are not necessary to meet CWA requirements in Washington. Rather, in this instance, the EPA is exercising its discretion to allocate its resources in a manner that supports regional and state activities to accomplish our mutual goals of protecting human health and the environment. The EPA will periodically assess Washington's progress and is not foreclosing the possibility that there may be circumstances where, despite the state's best efforts, Agency action may be appropriate, and the EPA could exercise its CWA section 303(c)(4)(B) authority. If you have any questions concerning this letter, please contact either me or Michelle Pirzadeh, Acting Regional Administrator at (206) 553-1272.

Sincerely,

Michael H. Shapiro
Acting Assistant Administrator

cc: Heather Bartlett, Washington Department of Ecology
Melissa Gildersleeve, Washington Department of Ecology

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

MAY 04 2016

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Re: Response to Petition for Rulemaking on Water Quality Criteria for Toxics in the State of Washington

Dear Ms. Bell:

The U.S. Environmental Protection Agency (EPA) is responding to your petition dated October 28, 2013, and follow up letters dated August 31, 2015 and February 9, 2016. Your petition requested that the EPA take specific steps to update water quality criteria for toxics to protect human health and aquatic life in Washington.

Human Health Criteria

As you know, on September 14, 2015, the EPA published a proposed rule that would revise the current federal Clean Water Act human health water quality criteria applicable to waters under the state of Washington's jurisdiction to ensure that the criteria are set at levels that will protect fish consumers in Washington from exposure to toxic pollutants. The EPA's proposed rule updates the fish consumption rate based on more recent regional and local fish consumption data, as well as updates the toxicity and exposure parameters, all of which are used to calculate human health criteria. The proposal also takes into account applicable EPA policies, guidance, and legal requirements. The public comment period for the proposed federal rule closed on December 28, 2015 and the EPA is now working to respond to the comments received.

The Washington State Department of Ecology (Ecology) proposed draft human health criteria for public comment on February 3, 2016. If the state of Washington submits final criteria to EPA for approval under the Clean Water Act before EPA finalizes the federal human health water quality criteria, EPA intends to review and act upon the state's submission in a timely manner.

Aquatic Life Criteria

Regarding Washington's aquatic life criteria, the EPA acknowledges that Ecology has not updated the majority of these criteria since 1992, and that it is important for states and tribes to review the latest science, including EPA's national 304(a) criteria recommendations, and update criteria in a timely manner. Under the Clean Water Act, Congress gave states primary responsibility for developing and adopting water quality standards for their waters. It remains EPA's strong preference to support states in their development of water quality standards to protect state waters rather than to promulgate federal water quality standards. With this goal in mind, EPA has been encouraging Ecology to consider updates to its aquatic life criteria, and discussing potential timeframes for this work to occur. Ecology's Water Quality Program 2015-2020 Strategic Plan lists updates to criteria for aquatic life as one of the key

actions to complete in advance of the next Triennial Review process.[1] The EPA expects that Ecology will begin work on these aquatic life criteria revisions after completing its human health criteria rulemaking. EPA is committed to supporting Ecology as it moves forward with a rulemaking to revise the state's aquatic life criteria for toxics. This includes partnering with the Services on Endangered Species Act consultation and building upon relevant information from completed consultations on similar toxics criteria in other Region 10 states.

Specifically for copper, EPA Region 10 hosted a workshop in May 2015, which Ecology attended, to work with states and tribes on adopting EPA's 304(a) biotic ligand model (BLM) criteria recommendation for copper. In addition, EPA has been working closely with the Oregon Department of Environmental Quality to develop statewide freshwater copper aquatic life criteria. Pending Oregon's adoption of copper criteria that EPA can approve as meeting Clean Water Act requirements, EPA has itself proposed federal copper and cadmium criteria for Oregon in March 2016. EPA's proposed rule identifies scientifically defensible and protective aquatic life copper and cadmium criteria for Oregon, which other Region 10 states can use as a guide for developing statewide criteria. EPA also has been working with the Idaho Department of Environmental Quality on revisions to their aquatic life criteria for copper.

At the national level, EPA released updated 304(a) cadmium criteria recommendations in March 2016. Other work is in progress to update EPA's aquatic life 304(a) recommendations, such as for aluminum, selenium, and copper. EPA expects this work to be extremely valuable to Ecology as they review the latest science to update their aquatic life criteria.

In the meantime, EPA has a number of follow up requests concerning information provided in your petition. Your response to our information requests below will help inform EPA's decision to grant or deny your petition request.

1. NWEA has identified several toxic pollutants for which Washington does not have applicable numeric aquatic life criteria in its water quality standards, but for which EPA has issued numeric 304(a) criteria recommendations. Specifically: acrolein, carbaryl, diazinon, nonylphenol, and tributyltin. Under 303(c)(2)(B), state adoption of numeric criteria for a pollutant is only expected as a consequence of EPA developing numeric 304(a) criteria for the same pollutant if the pollutant is on the list of priority toxics and if it "could reasonably be expected to interfere with those designated uses adopted by the State, as necessary to support such designated uses." With respect to each toxic pollutant for which your petition relies, in part, on the position that Washington should have numeric criteria for a pollutant because a 304(a) numeric criterion recommendation is available: if you are aware of specific information showing that the particular toxic pollutant is present in Washington waters such that it can be expected to interfere with the attainment of Washington's designated uses, please provide it to us.

2. As your petition mentions, the Oregon and Idaho Biological Opinions concluded that CWA 303(c) approval of state water quality standards for five toxic pollutants (arsenic, copper, selenium, cyanide, and mercury), would jeopardize listed species. EPA is considering the relevance of these opinions to Washington. To that end, please provide any evidence that you may be aware of showing that the toxic pollutant concentrations specific to Washington waters are high enough to harm listed species according to the analyses in the Biological Opinions

[1] See page 11: http://www.ecy.wa.gov/programs/wq/WQStrategicPlan2015-2020.pdf

referenced and the criteria set by existing Washington water quality standards are not protective.

3. NWEA references many concerns regarding Southern Resident killer whales (orcas) and alleges a lack of adequate protection by Washington's water quality standards. Please clarify the extent to which you believe any harm to orcas is being caused by: (a) toxic chemicals, including PBTs, present in Washington's waters that exceed the existing water quality standards, compared to (b) toxic chemicals, including PBTs, present in Washington's waters at concentrations that are meeting existing water quality standards. To the extent your belief is founded on particular evidence, please provide it to us.

4. NWEA also has provided information related to toxics contamination from stormwater discharges affecting water quality in Puget Sound and other Washington waters. Please provide further information to explain why you believe that the adoption of more stringent aquatic life criteria would address the concerns raised by the Services in the Industrial Stormwater General Permit (which you note in your August 31, 2015 letter).

In closing, we would like to thank you for your concerns related to human health and aquatic life toxics criteria in Washington. Please note that this letter does not constitute and is not intended as an Administrator determination under CWA section 303(c)(4)(B). If you have any questions concerning this letter please contact either me or Dan Opalski, Director of Region 10's Office of Water and Watersheds at (206) 553-1855.

Sincerely,

Sara Hisel-McCoy

Sara Hisel-McCoy, Director
Standards and Health Protection Division
Office of Science & Technology

cc: Heather Bartlett, Washington Department of Ecology
Melissa Gildersleeve, Washington Department of Ecology

NORTHWEST ENVIRONMENTAL ADVOCATES

February 21, 2017

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Washington, D.C. 20460 *Via email only*: Hisel-Mccoy.sara@Epa.gov

Re: **EPA's Response to the NWEA Petition for Rulemaking on Water Quality Criteria for Toxics in the State of Washington**

Dear Ms. Hisel-McCoy:

In your letter of May 4, 2016, you acknowledge the deficiencies of the State of Washington's water quality standards for toxic chemicals and then proceed to encourage its and your own continued inaction by posing a series of largely rhetorical questions that suggest that a tiny nonprofit organization should conduct research that is the responsibility of federal and state agencies. In doing so, EPA is too clever by half; your letter is a transparent attempt to postpone long overdue federal action on these deficient water quality standards and action on the petition filed by Northwest Environmental Advocates (NWEA) on October 28, 2013.

In your letter you enumerate EPA's efforts to update some of the agency's Clean Water Act (CWA) section 304(a) national recommended criteria for toxic contaminants, in order to demonstrate that these efforts will support Washington's future criteria updates, yet you fail to acknowledge both why EPA has been conducting this work and how it is pertinent to Washington and NWEA's pending petition. We would like the record to be clear; nearly all of these actions for which EPA claims credit are a direct result of NWEA's multiple lawsuits against EPA and other federal agencies.

In this vein, EPA cites to its proposed federal copper and cadmium criteria for Oregon from March 2016 but fails to note that NWEA was forced to sue EPA to obtain the agency's underlying disapproval action on Oregon's 2004 submission of aquatic life criteria. *See Nw Envtl. Advocates v. U.S. EPA*, Civil No. 06-479-HA, Consent Decree (May 29, 2008). Likewise EPA fails to acknowledge that NWEA had to sue the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) (together "the Services") in 2010 in order to

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obtain their biological opinions on Oregon's standards that led to the EPA disapproval actions. *See Nw. Envtl. Advocates v. NMFS et al.*, Civil No. 10-907-BR, Stipulated Dismissal (Aug. 23, 2010). And EPA fails to admit that NWEA was, once again, required to sue EPA in order to obtain the very proposed federal promulgation in Oregon that it now asserts is a demonstration of its independent forward movement. *See Nw Envtl. Advocates v. U.S. EPA*, 3:15-cv-0663 (consent decree signed June 9, 2016).

Moreover, the updated 304(a) national cadmium recommendations issued concurrently with the proposed Oregon promulgation, as well as the updates on the 304(a) recommendations for copper and aluminum, are a product of this litigation, as EPA well knows. Of the efforts cited, only EPA's work on the recommended criteria for selenium is unrelated to NWEA's litigation and that stems from EPA's longstanding failure to address the Services' concern that selenium criteria proposed for EPA's federal promulgation of the California Toxics Rule (CTR), finalized in 2000, were not sufficiently protective of threatened and endangered species listed under the Endangered Species Act (ESA). EPA is now under federal court order to propose selenium criteria for California by November 30, 2016[1] and to thereafter finalize them.

Whether EPA's work on new revisions to 304(a) criteria is "extremely valuable to Ecology" or not is frankly irrelevant to the long overdue criteria updates that were already required by the Clean Water Act. Presumably EPA is in a near constant state of updating the 304(a) criteria to reflect changing science yet nowhere did Congress suggest that that effort was a rationale for state or EPA inaction on updating the actual regulatory criteria. As you know, Congress amended the Clean Water in 1987 for precisely the opposite reason: to ensure that states updated their toxic criteria every three years to reflect the national concern with toxic contamination of surface waters and agency inaction.

Every delay on the part of the State of Washington and every delay on the part of EPA in its oversight of Washington's failure to implement the Act as written ripples through the state's entire water quality-based program, resulting in inadequate impairment listings and insufficiently protective NPDES permits. In fact, this was <u>precisely the point made by EPA</u> when it promulgated the California Toxics Rule in 2000, as cited and quoted in our petition at pages 74-77, when EPA itself chose to "[not] support the criteria in today's rule on a pollutant-specific, water body-by-water-body basis . . . . [because to do so] would impose an enormous administrative burden and would be contrary to the statutory directive for swift action[.]"

In contrast, for Washington waters—upon which many threatened and endangered species rely

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[1] *See Our Children's Earth Foundation v. EPA*, Case No. 3:13-cv-2857-JSW, Consent Decree (Aug. 25, 2014). Alternatively, the consent decree provides for EPA to propose selenium criteria by November 30, 2018 in the event that it proposes selenium criteria for salt and estuarine waters of the San Francisco Bay Delta by June 30, 2016. *Id*. at 6.

and which are suffering the ill effects of toxic contamination—EPA suggests that its mere "encouraging" of Ecology action is sufficient. And it points to Ecology's having included a bare mention of needed updates to aquatic life criteria in its 2015-2020 strategic plan as evidence that its expectations of future state action are enough. If EPA truly thought that it were, you would deny NWEA's petition today.

The remainder of this letter provides our answers to your four questions.

EPA Query No. 1: Presence of toxics in Washington waters

EPA's Query No. 1 asks NWEA:

> With respect to each toxic pollutant for which your petition relies, in part, on the position that Washington should have numeric criteria for a pollutant because a 304(a) numeric criterion recommendation is available: if you are aware of specific information showing that the particular toxic pollution is present in Washington waters such that it can be expected to interfere with the attainment of Washington's designated uses, please provide it to us.

Please see EPA's support for not evaluating the need for updated criteria on a pollutant-by-pollutant, water-body-by-water-body basis above and at the California Toxics Rule preamble, EPA, *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule*, 65 Fed. Reg. 31682, 31687 (May 18, 2000).

EPA Query No. 2: Toxic pollutant concentrations in Washington waters high enough to harm ESA-listed species that demonstrates Washington's criteria are not protective

EPA's Query No. 2 asks NWEA to:

> provide any evidence that you may be aware of showing that the toxic pollution concentrations specific to Washington waters are high enough to harm listed species according to the analyses in the Biological Opinions referenced and the criteria set by existing Washington water quality standards are not protective.

As EPA knows, NWEA does not have toxicologists on staff and NWEA is not in a position to put itself in the role that, by law, is that of the expert fish and wildlife agencies. Precisely what toxic pollutant concentrations—singularly or in combination—is a level "high enough to harm ESA-listed species" is not ours to know or figure out. Even the levels determined to pose "jeopardy" to these or similar species in, for example, Oregon or Idaho may not be sufficiently protective given the different circumstances posed in the State of Washington. For example, as our letter of February 9, 2016 pointed out, Puget Sound suffers from biological and hydrological

isolation that has increased the body burden of many aquatic species (e.g., Southern Resident killer whales and Chinook salmon in Puget Sound have higher levels of toxic contaminants than populations that have more oceanic distributions). That presumably would be a factor that the Services would take into account in assessing the concentrations that are "high enough to harm ESA-listed species."

EPA Query No. 3: The extent to which harm to Southern Resident killer whales is being caused by toxic chemicals that exceed water quality standards compared to toxic chemicals that are meeting water quality standards

EPA's Query No. 3 asks NWEA to:

> clarify the extent to which you believe any harm to orcas is being caused by: (a) toxic chemicals, including PBTs, present in Washington's waters that exceed the existing water quality standards, compared to (b) toxic chemicals, including PBTs, present in Washington's waters at concentrations that are meeting existing water quality standards. To the extent your belief is founded on particular evidence, please provide it to us.

This question appears to be designed simply to justify continued delay by EPA. As EPA is well aware, NWEA does not have a toxicologist on staff who could do the type of detailed analysis that EPA is requesting. Moreover, it irrelevant. Our petition did not endorse any of Washington's standards or EPA's recommended criteria. It asked EPA to act according to the statute and to ensure that Washington's criteria were as updated as EPA's recommended criteria. If EPA independently concludes that toxic chemicals that currently meet Washington's water quality standards are causing harm, those too should be updated. There is absolutely no indication that EPA is itself attempting to parse out which pollutants pose the greatest harm to killer whales or any other species in Washington waters to ensure that it addresses the highest priorities first.

In asking this question, EPA seems to be hinting that toxic pollutants that are inadequately regulated by numeric criteria that NWEA has not called out for revision are more likely the ones that are causing continued harm to the endangered killer whales. We are not in a position to assess these relative impacts, only to assess the degree to which EPA and the states have complied with the statute. If, however, EPA believes that current criteria that are not required by law to be updated and therefore not a part of NWEA's petition should be updated because the current criteria are no longer believed to be protective of this sensitive designated use, EPA should make this announcement public and then it should immediately proceed to an Administrator's determination in order to ensure that Washington's water quality standards are protective of endangered species, in conformity with section 7(a)(1) of the ESA (federal agencies shall utilize their authorities to conserve threatened and endangered species).

EPA Query No. 4: Why adoption of more stringent aquatic life criteria would address concerns raised by the Services about Washington's Industrial Stormwater General Permit

EPA's Query No. 4 asks NWEA to:

> provide further information to explain why you believe that the adoption of more stringent aquatic life criteria would address the concerns raised by the Services in the Industrial Stormwater General Permit (which you note in your August 31, 2015 letter).

NWEA is not in a position to speak for the Services regarding Washington's Industrial Stormwater General Permit or any other matter. However, when an NPDES discharge permit is not reducing loads or concentrations of pollutants sufficient to protect water quality and designated uses there may be a range of reasons. These could include any or all of the following: enforcement failure, inadequate numeric water quality-based effluent limits, inadequate best management practices, and permit requirements that are intended to meet water quality standards that are not protective. NMFS has articulated a strong concern that among the problems with this particular permit is the permit's goal for copper, as we discussed in our August 31, 2015 letter and is set out in the documents prepared directly by NMFS that we provided to EPA. If EPA thinks that more stringent aquatic life criteria are not the solution to NMFS's concerns about this permit, we wonder why EPA has done nothing—using its oversight authority—to ensure that the permit is more effective in controlling some of the millions of pounds of toxic pollutants that enter Puget Sound every year.

In conclusion, we are at a loss as to why EPA believes that a small nonprofit should do the work that Congress intended to be done by EPA, the states, and the Services.

Sincerely,

Nina Bell
Executive Director

NORTHWEST ENVIRONMENTAL ADVOCATES

August 31, 2015

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
USEPA Ariel Rios Building (AR)
1200 Pennsylvania Avenue N.W.
Washington, DC 20004

Certified Mail; Return Receipt Requested

Re: **Follow Up to October 28, 2013 Northwest Environmental Advocates' Petition for Rulemaking on Water Quality Criteria for Toxics in the State of Washington**

Dear Ms. McCarthy:

In light of Washington Governor Jay Inslee's July 30, 2015 announcement that his state's Department of Ecology will not be submitting new and revised human health criteria to EPA for approval, it is likely that EPA is now moving towards a federal promulgation of such criteria in accord with its previous commitments to Washington's tribes. It is, therefore, an appropriate time for us to remind EPA that it must also step in and address Washington's failure to update its aquatic life toxic criteria. As our October 28, 2013 Petition for Rulemaking on Water Quality Criteria for Toxics in the State of Washington to you noted, Washington has largely failed to adopt new and revised aquatic life criteria for toxics, consistent with the requirements of the Clean Water Act (CWA), since it adopted them over two decades ago.

Despite the state's egregious record of inaction—including for pollutants known to harm species listed as threatened or endangered under the Endangered Species Act (ESA) at levels allowed by Washington's water quality standards—almost two years have gone by without any communication from EPA in response to our petition. For this reason, we are writing to urge you to make the determination and engage in the federal promulgation with regard to Washington's aquatic life criteria as our petition requested. The need for EPA action certainly has not waned since we asked the agency to step in. If anything, the Washington Department of Ecology's having just concluded a failed and highly politicized attempt to update its human health criteria makes it exceedingly unlikely that the state will soon begin, let alone complete, updating its aquatic life toxic criteria.

NWEA's Petition

As NWEA's petition described, with the exception of aquatic life criteria for ammonia, chronic marine copper, and chronic marine cyanide, Washington last adopted new or revised numeric aquatic life criteria for toxic pollutants on November 25, 1992. That was over 22 years ago. As the petition also pointed out, EPA has approved Washington water quality standards at least five times since 1992 and each time EPA has failed to determine that Washington's aquatic life criteria were inconsistent with CWA section 303(c)(2)(B) for a substantial list of toxic

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pollutants. The petition identified 19 pollutants for which EPA had, at that time, issued new or revised recommended 304(a) aquatic life criteria.[1]

EPA is well aware of the hazards of toxic chemicals to aquatic species in Washington's waters, particularly those listed as threatened or endangered if for no other reason than EPA's having the results of recently-completed ESA consultations on certain toxic criteria in other Region 10 states. In June, the U.S. Fish and Wildlife Service (FWS) completed a biological opinion on EPA's 1996, 1997, and 2005 toxic criteria approval actions for Idaho, finding jeopardy for eight pollutants (arsenic, copper, lead, nickel, selenium, zinc, cyanide, and mercury) and a low-end hardness floor for metals.[2] Likewise, the National Marine Fisheries Service (NMFS) recently completed its biological opinion on the same Idaho criteria, making a jeopardy conclusion for five of those pollutants (arsenic, copper, selenium, cyanide, and mercury) and the hardness floor.[3] Before that, NMFS issued a biological opinion finding jeopardy for Oregon's cadmium, copper, aluminum, and ammonia criteria.[4] Many of the species addressed by the jeopardy opinions in Oregon and Idaho are also present in Washington waters.

Toxics in Puget Sound

Levels of these and other toxic pollutants are among the reasons that EPA has long been concerned about the health of Puget Sound. EPA features the toxic contamination of the Southern Resident killer whales, Pacific herring, and harbor seals in Puget Sound on its website as evidence of its ongoing concerns about pollution of Washington's waters.[5] In 2006, EPA

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[1] The pollutants included: acrolein, arsenic, carbaryl, cadmium, chromium (III), chromium (VI), copper, diazinon, dieldrin, endrin, gamma-BHC (Lindane), mercury, nickel, nonylphenol, parathion, pentachlorophenol, selenium, tributyltin, and zinc. NWEA neglected to include the then-recently updated recommended aquatic life criteria for ammonia. 78 Fed. Reg. 52192 (Aug. 22, 2013).

[2] FWS, *Biological Opinion for the Idaho Water Quality Standards for Numeric Water Quality Criteria for Toxic Pollutants, 01EIFW00-2014-F-0233* (June 25, 2015).

[3] NMFS, *Final Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Water Quality Toxics Standards for Idaho* (May 7, 2014).

[4] NMFS, *Jeopardy and Adverse Modification of Critical Habitat Biological Opinion for the Environmental Protection Agency's Proposed Approval of Certain Oregon Administrative Rules Related to Revised Water Quality Criteria for Toxic Pollutants* (Aug. 14, 2012).

[5] *See* EPA, Salish Sea, *Southern Resident Killer Whales*, http://www2.epa.gov/salish-sea/southern-resident-killer-whales (last visited Aug. 8, 2015) ("Recent declines in orca population may be linked to threats such as toxic pollution[.]"); EPA, Salish Sea, *Toxics in the Food Web: Pacific Herring and Harbor Seals* http://www2.epa.gov/salish-sea/toxics-food-web-pacific-herring-and-harbor-seals (last visited Aug. 8, 2015) ("PCBs and PBDEs are found in all harbor seals of the Salish Sea, but levels are declining. Likewise, levels of PCBs and PDBEs in Pacific herring are generally declining or remaining stable. However, PCBs in herring in southern Puget Sound are above levels that may cause negative effects in the food web.").

issued a report on the ecosystem health of the Puget Sound and Georgia Basin.[6] The agency concluded that the ecosystem indicators of "river, stream and lake quality," "marine species at risk," "toxics in harbor seals," and "marine water quality" were all on a downward trajectory. *See id.* at 2. EPA focused on the effect of industrial activities and polluted surface runoff of metals and organic compounds, noting that killer whales "are some of the most contaminated marine mammals in the world because they have bioaccumulated these chemical contaminants through the entire food web," and that "[t]oxic chemical concentrations in Killer Whales and contamination of food sources" are among the reasons the species has been listed under the ESA. *Id*. at 119-120.[7] Both killer whales and harbor seals were described by EPA as indicators of the decline of the Puget Sound Georgia Basin ecosystem.[8] While EPA's report made passing

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[6] EPA, *Puget Sound Georgia Basin Transboundary Ecosystem Indicator Report* (2006) *available at* http://www.epa.gov/pugetsound/pdf/indicators_report.pdf (last visited Aug. 8, 2015) This report discusses studies reported in 2002, showing that polybrominated diphenyl ethers (PBDEs) in harbor seals had increased 1500 percent between 1984 and 2003, findings that EPA said were consistent with those of state agencies that have demonstrated "elevated [persistent bioaccumulative toxic] contamination of sediments and bottom fishes in the urbanized bays of central Puget Sound compared to southern Puget Sound and the Georgia Basin." *Id*. at 129, 131, 132.

[7] *See* NMFS, *Endangered and Threatened Wildlife and Plants: Endangered Status for Southern Resident Killer Whales, Final Rule*, 70 Fed. Reg. 69903 (Nov. 18, 2005); *also see id.* at 69911 (identifying as activities that could result in a violation of ESA section 9 "take" prohibitions to include "[d]ischarging or dumping toxic chemicals or other pollutants into areas used by Southern Resident killer whales."). The subsequently-designated critical habitat includes the waters of Puget Sound. 71 Fed. Reg. 69054 (Nov. 29, 2006). *See also*, EPA, NMFS, *Potential Effects of PBDEs on Puget Sound and Southern Resident Killer Whales A Report on the Technical Workgroups and Policy Forum* (July 24, 2013), *available at* http://www.eopugetsound.org/sites/default/files/features/resources/PBDEs_Puget_Sound_Report.pdf (last visited Aug. 8, 2015).

[8] *See, e.g.*, EPA, *Puget Sound Georgia Basin Ecosystem Indicator Report, Executive Summary Marine Species at Risk* (Oct. 2006) *available at* http://www.epa.gov/pugetsound/pdf/Summary_Marine_Species_at_Risk_Indicator.pdf (last visited Aug. 13, 2015) at 2 ("The Puget Sound Georgia Basin has a long legacy of intensive industrial activities including industrial wastewater discharges, mining, pulp and paper mills, oil refineries, and smelting. Contamination from these sources is exacerbated by overall polluted surface runoff. Contaminants of concern include heavy metals, organic compounds such as polycyclic aromatic hydrocarbons (PAHs, carcinogens created through petroleum combustion), flame retardants, phthalate esters (used in plastics and cosmetics) and polychlorinated biphenyls (PCBs)."). *See also*, EPA, *Puget Sound Georgia Basin Ecosystem Indicator Report, Executive Summary, Toxics in Harbor Seals* (Oct. 2006) *available at* http://www.epa.gov/pugetsound/pdf/Summary_Toxics_in_Harbor_Seals_ Indicator.pdf (last visited Aug. 13, 2015) at 1 ("A study of Puget Sound and Strait of Georgia harbor seal prey showed that the Puget Sound harbor seal food basket is seven times more contaminated with PCBs (2.90 mg/kg lipid) than the Strait of Georgia food basket (0.41 mg/kg lipid). Further, PBDE concentrations were almost five times higher in the Puget Sound seal food basket. Differences in prey consumed did not explain the differences in contamination between the two harbor seal populations, but was rather attributed to an effect

reference to Washington's water quality standards, it did not discuss their outdated status or their regulatory relevance to resolving the pollution problems that EPA identified. *Id*. at 61, 67, 151.

Given EPA's interest in the killer whale, the agency has no doubt followed developments pertaining to the factors that may have caused the decline or may be limiting recovery of the species, such as toxic chemicals that accumulate in top predators. NMFS' recovery plan for the killer whale, for example, discusses the whales' vulnerability to accumulation of toxic contaminants because of the high trophic level of their prey and their long life expectancy.[9] The recovery plan noted that "there are questions about whether permit requirements and standards" are sufficiently protective, citing the Puget Sound Action Team's report that "between July 2004 and June 2006, the Washington Department of Ecology reissued 96 individual NPDES permits in the Puget Sound Basin, but stated it was not known if these actions reduced pollutants to the Sound." *Id*. at II-99. The killer whale recovery plan did point to EPA and the Services' national plan to improve consultation procedures on water quality standards, *id.* at II-101, but as EPA knows, these plans have long failed to materialize and now have been extinguished. NMFS identified as a recovery management measure the "adoption of revised water and sediment quality standards based on available information[.]" *Id*. at V-12. However, such revisions are stymied if the Department of Ecology fails to even review the outdated criteria. The state's failure leaves no other mechanism than an Administrator's determination to implement this management measure. NMFS has not changed its views; in a more recent review of studies on the killer whale, NMFS reiterated the importance of "[w]orking to reduce chemical contamination in the whales' habitat and food."[10]

EPA must also be aware that a number of biological opinions on federal actions in Puget Sound have highlighted NMFS' concerns with adverse effects of toxic contaminants on the killer whale.[11] NMFS has also raised concerns with the effects of toxics on salmonids, which are both

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of local contamination within Puget Sound. . . . Total PCBs in whole bodies of herring from Port Orchard and Squaxin (central and southern Puget Sound, respectively) were continued four to nine times higher than those from the Georgia Basin (Denman Island). The elevated levels of PCBs in Puget Sound herring are similar to levels measured in herring from the Baltic Sea, one of the more highly contaminated marine ecosystems in the world.").

[9] NMFS, *Recovery Plan for Southern Resident Killer Whales (Orcinus orca)* (Jan. 17, 2008), *available at* http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/killer_whales/esa_status/srkw-recov-plan.pdf (last visited Aug. 12, 2015) at II-88.

[10] NMFS, *Southern Resident Killer Whales: 10 Years of Research & Conservation* (June 2014), *available at* http://www.nwfsc.noaa.gov/news/features/killer_whale_report/pdfs/bigreport62514.pdf (last visited Aug. 12, 2015) at 10.

[11] *See, e.g.*, NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the on-going National Flood Insurance Program carried out in the Puget Sound area in Washington State. HUC 17110020 Puget Sound* (Sept. 22, 2008), *available at* http://www.fema.gov/media-library-data/20130726-1900-25045-9907/nfip_biological_opinion_puget_sound.pdf (last visited Aug. 8, 2015). *See id.* at 42-43 ("Many types of chemicals are

killer whale prey and themselves ESA-listed.[12]

Likewise, EPA's role in the Puget Sound Partnership, a national estuary program administered by the agency under section 320 of the CWA, suggests it is likely well acquainted with the Washington Department of Fish & Wildlife's work that has highlighted "Puget Sound's physical geography and patterns of water movement [that] may exacerbate the problem of toxics in its organisms" and the "biological isolation of its resident fish and shellfish, potentially increasing their risk of exposure to toxic contaminants."[13]

Toxics in Stormwater Discharges

EPA must also be well aware of a considerable amount of information about toxic loading in Puget Sound from stormwater, much of which is regulated under NPDES permits for which EPA retains oversight. For example, as a member of its steering committee, EPA certainly knows about Ecology's 2009-2010 study of toxic loading to Puget Sound that was intended to "help guide decisions about how to most effectively direct resources to reduce toxic contamination in

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toxic when present in high concentrations, including organochlorines, polycyclic aromatic hydrocarbons (PAHs), and heavy metals. . . . Organochlorines are also highly fat soluble, and accumulate in the fatty tissues of animals (O'Shea 1999, Reijnders and Aguilar 2002). Bioaccumulation through trophic transfer allows relatively high concentrations of these compounds to build up in top-level marine predators, such as marine mammals (O'Shea 1999). Killer whales are candidates for accumulating high concentrations of organochlorines because of their high position in the food web and long life expectancy (Ylitalo et al. 2001, Grant and Ross 2002). Their exposure to these compounds occurs exclusively through their diet (Hickie et al. 2007). High levels of persistent organic pollutants such as PCBs and DDT are documented in [Southern Resident Killer Whales] (Ross et al. 2000, Ylitalo et al. 2001). These and other chemical compounds have the ability to induce immune suppression, impair reproduction, and produce other adverse physiological effects, as observed in studies of other marine mammals (review in NMFS 2008). Immune suppression may be especially likely during periods of stress and resulting weight loss, when stored organochlorines are released from the blubber and become redistributed to other tissues (Krahn et al. 2002).")

[12] *Id*. at 98 ("Sediments washed from the urban areas and deposited in river waters include trace metals such as copper, cadmium, zinc, and lead (California State Lands Commission 1993). Pollutant loading in surface water is widely attributable to urban stormwater runoff. . . . Water temperature, turbidity, dissolved oxygen, pH, nutrients, and toxic chemicals/metals also affect water quality and the ability of surface waters to sustain listed salmonids. . . . [W]hen exacerbated by stormwater runoff, the acceptable range of these factors can be exceeded, altering or impairing biological processes and adversely impacting salmonids (Spence et al. 1996). . . . [T]he weight of evidence suggests that adult coho salmon, which enter small urban streams following fall storm events, are acutely sensitive to non-point source stormwater runoff containing pollutants that typically originate from urban and residential land use activities.").

[13] WDF&W, *Toxic Contaminants in Puget Sound Fish and Shellfish*, http://wdfw.wa.gov/conservation/research/projects/marine_toxics/ (last visited Aug. 8, 2015).

Puget Sound.[14] EPA must have known that Ecology compared the toxics data to outdated numeric criteria it had adopted in 1992.[15] Similarly, a more recent 2015 study to establish a baseline of data on municipal stormwater quality and to identify chemicals of interest in stormwater also used Washington's outdated aquatic life criteria.[16] Other toxics loading information routinely shows up in NMFS consultations pertaining to activities in Puget Sound. For example, a 2011 biological opinion commented:

> The Washington State Department of Ecology estimates that Puget Sound receives between 14 and 94 million pounds of toxic pollutants per year, which include oil and grease, PCBs, phthalates, PBDEs, and heavy metals that include zinc, copper and lead (Washington Department of Ecology 2010). Several urban embayments in the Sound have high levels of heavy metals and organic compounds (Palsson et al. 2009). About 32 percent of the sediments in the Puget Sound region are considered to be moderately or highly contaminated (Puget Sound Action Team 2007), though some areas are undergoing clean-up operations that have improved benthic habitats (Puget Sound Partnership 2010).[17]

Likewise, given its concerns about Puget Sound stormwater, EPA undoubtably is familiar with a

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[14] Ecology, *Focus on Puget Sound, Toxics in surface runoff to Puget Sound* (May 2011) at 1, *available at* https://fortress.wa.gov/ecy/publications/SummaryPages/1103025.html (last visited Aug. 8, 2015).

[15] Ecology, *Control of Toxic Chemicals in Puget Sound: Phase 3 Data and Load Estimates* (April 2011), *available at* https://fortress.wa.gov/ecy/publications/documents/1103010.pdf (last visited Aug. 12, 2015). The study compared data to Washington aquatic life criteria for cadmium, copper, lead, mercury, zinc, total PCBs, and DDT. *Id*. at 46-56. Similarly, its conclusions are based on the criteria: "Stormwater runoff, particularly from commercial/industrial subbasins, did not meet water quality criteria or human health criteria for several parameters. These include dissolved copper, lead, and zinc; total mercury; total PCBs; bis(2-ethylhexyl) phthalate; several carcinogenic PAHs; and one pesticide." *Id*. at xix.

[16] Ecology, *Western Washington NPDES Phase I Stormwater Permit, Final S8.D Data Characterization 2009-2013* (Feb. 2015), *available at* https://fortress.wa.gov/ecy/publications/publications/1503001.pdf (last visited Aug. 12, 2015), at 37; 12-13 ("Across all four land uses, copper, zinc, and lead were-more often than not-found to exceed (not meet) water quality criteria (Table ES-1). Dissolved zinc and copper in stormwater samples exceeded acute aquatic life criteria in 36% and 50% of the samples, respectively, over the three years of data. Mercury and total PCBs exceeded chronic aquatic life criteria in 17% and 41% of the samples, respectively.")

[17] NMFS, *Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation Evaluation of 2010-2014 Puget Sound Chinook Harvest Resource Management Plan under Limit 6 of the 4(d) Rule Impacts of Programs Administered by the Bureau of Indian Affairs that Support Puget Sound Tribal Salmon Fisheries* (May 24, 2011), *available at* https://pcts.nmfs.noaa.gov/pcts-web/dispatcher/trackable/NWR-2010-6051?overrideUserGroup=PUBLIC&referer=%2fpcts-web%2fpublicAdvancedQuery.pcts%3fsearchAction%3dSESSION_SEARCH (last visited on Aug. 13, 2015) at 94.

number of NMFS biological opinions pertaining specifically to toxic pollutants from this source, as well as the scientific studies on which these opinions are based. For example, in its 2008 consultation on the National Flood Insurance Program in Puget Sound, *see* fn. 11, NMFS highlighted the adverse effects of pollutants in stormwater, noting that,

> recent occurrences of pre-spawn mortality (PSM) in coho salmon have heightened our concern with stormwater quality. . . . adult coho salmon, which enter small urban streams following fall storm events, are acutely sensitive to non-point source stormwater runoff containing pollutants that typically originate from urban and residential land use activities. . . . a growing body of science . . . suggests it is likely that other salmonids, including listed salmonids, experience sub-lethal impacts from pollutants found in stormwater.

Id. at 98; *see also id*. at 98-99 (floodplain development increases pollution loading from stormwater and stormwater pollution contaminates sediments affecting salmonids). NMFS raised these same concerns in earlier consultations for federally-funded transportation projects.[18] For example, a 2007 biological opinion addressed the regular discharge of "high concentrations of heavy metals (e.g. copper, lead, zinc) that exceed acute toxicity standards," as well as river sediments contaminated with a wide range of pollutants, which "create lethal and sublethal effects to salmonids[.]" *Id.* at 18, 23 (specifically calling out copper levels that are "sufficient to inhibit salmonid olfaction" and zinc levels exceeding the threshold at which fish "lose their predatory avoidance behavior."); *see also id.* at 29-34 (discussing lethal and sublethal effects to salmonids from water quality degradation within urbanized watersheds in the Puget Sound). As EPA knows, these pollutants are among those for which Washington has not updated its aquatic life criteria for over two decades.

EPA itself has been sufficiently concerned about toxic stormwater discharges to Puget Sound of these same pollutants to take regulatory actions against sources. In a 2013 news release, EPA

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[18] *See* NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Interstate 405 State Route 169 to Interstate 90 Congestion Relief – Renton to Bellevue Improvement, King County, Washington. (6th Field HUCs, 171100120302, Cedar River and 171100120106, Lower Cedar River)* (Jan. 3, 2007), *available at* https://pcts.nmfs.noaa.gov/pcts-web/dispatcher/trackable/NWR-2006-1454?overrideUserGroup=PUBLIC&referer=%2fpcts-web%2fpublicAdvancedQuery.pcts%3fsearchAction%3dSESSION_SEARCH (last visited Aug. 9, 2015); *see also* NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Interstate 405 Congestion Relief and Bus Rapid Transit Projects – Renton Nickel Improvement, King County, Washington. (HUC, 171100130399, Lower Green River and 171100120106, Lower Cedar River)* (Sept. 20, 2006), *available at* https://pcts.nmfs.noaa.gov/pcts-web/dispatcher/trackable/NWR-2005-6240?overrideUserGroup=PUBLIC&referer=%2fpcts-web%2fpublicAdvancedQuery.pcts%3fsearchAction%3dSESSION_SEARCH (last visited Aug. 13, 2015); *id*. at 28-35 (discussion of metals' adverse effects to aquatic species); *id*. at 29 ("When they compared their results to the acute EPA Water Quality Criteria for dissolved copper (13 µg/L for 100 mg/L hardness), Baldwin et al., (2003) determined that a one-hour discharge at the acute EPA Water Quality Criteria could be expected to cause up to a 50 percent loss of sensory capacity among coho salmon in freshwater habitats.").

wrote about its enforcement actions against four companies for discharging industrial stormwater to Puget Sound waterways.[19] Charged with violations of NPDES permits or the Clean Water Act, together the sources had discharged the following pollutants: copper, zinc, mercury, arsenic, cadmium, and lead, all but one of which are subjects of NWEA's petition. EPA's release stated that "[t]hese pollutants harm the Puget Sound ecosystem and marine life," but it has apparently not see fit to ensure that the aquatic life criteria that are the basis for the effluent limits in the violated permits themselves provide sufficient protection, even in light of overwhelming evidence that they do not.

Of course, stormwater and other sources of toxic pollutants are a statewide concern, not limited to Puget Sound. EPA likely is aware of, for example, the consultation on the Salmon Creek Interchange project in Clark County.[20] In that biological opinion, NMFS highlighted its concerns about copper and zinc, pointing out, *inter alia*, the unprotectiveness of Washington's criteria:

> [w]hen they compared their results to the acute U.S. Environmental Protection Agency (EPA) Water Quality Criteria for dissolved copper (13 µg/L for 100 mg/L hardness), Baldwin et al., (2003) determined that a one-hour discharge at the acute EPA Water Quality Criteria could be expected to cause up to a 50 percent loss of sensory capacity among coho salmon in freshwater habitats.

Id. at 21. NMFS also expressed concern that avoidance of chemical plumes could force fish to leave refugia, citing studies of observed avoidance response to copper at 0.1 µg/L (hardness of 90 mg/L), and going on to say that

> EPA (1980) also documented avoidance by rainbow trout fry of copper concentrations as low as 0.1 µg/L during a 1 hour exposure, as well as a Lethal Concentration at which 10 percent of the smolts exposed to 7.0 µg/L for 200 hours died, and a LC10 for juveniles in the swim-up stage exposed to 9.0 µg/L for 200 hours.

Id. NMFS concluded that "[a]t 10 µg/L, a concentration which will regularly occur in outfall effluent, responsiveness was reduced by 67 percent within 30 minutes, an exposure time that is less than typical discharge times for BMP outfalls." *Id*. Similarly, in that same opinion, NMFS discussed avoidance by salmonids of zinc, noting that "sublethal effects occur at concentrations approximately 75 percent less (5.6 µg/L) than lethal effects (24 µg/L) (EPA 1980; Hansen, et al.

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[19] EPA, *EPA focusing on industrial stormwater compliance, targeting a serious threat to Puget Sound water quality* (Aug. 26, 2013), http://yosemite.epa.gov/opa/admpress.nsf/0/0DD4BD2F905BCAE885257BD3006EA57B (last visited Aug. 13, 2015).

[20] NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Salmon Creek Interchange Improvement Project, Clark County, Washington. (6th Field HUCs, Salmon Creek 170800010901)* (March 20, 2009), *available at* https://pcts.nmfs.noaa.gov/pcts-web/dispatcher/trackable/NWR-2008-1199?overrideUserGroup=PUBLIC&referer=%2fpcts-web%2fpublicAdvancedQuery.pcts%3fsearchAction%3dSESSION_SEARCH (last viewed Aug. 20, 2015).

2002). Even relatively low concentrations (5.6 µg/L, established for juvenile rainbow trout) resulted in avoidance of the plume." *Id.* The NMFS thresholds for copper (2.0 µg/l over background levels of 3.0 µg/L or less) and zinc (5.6 µg/L over background zinc concentrations between 3.0 µg/L and 13 µg/L) were also cited in 2013 comments by NMFS on a draft NPDES permit for an industrial discharge to the Columbia River, along with comments on other toxic pollutants.[21]

None of this should be surprising. NMFS provided EPA with its scientific rationale concerning copper many years ago.[22] In a letter commenting on a proposed industrial stormwater general permit for over 1,100 industrial facilities in Washington State, NMFS reminded EPA of its oversight role in permitting and pointed out that NMFS had previously brought the same issues to EPA's attention regarding EPA's proposed issuance of the national multi-sector general permit for stormwater discharges.[23] Highlighting copper, NMFS attached a copy of its 2007 technical white paper on applying a benchmark concentration for dissolved copper. NMFS noted to EPA that "[t]he paper concludes that benchmark concentrations (calculated using EPA methodology) ranging from 0.18 to 2.1 µg/L of dissolved copper in fresh water result in reductions of 9 to 57 percent in predator avoidance by juvenile salmon." *Id.* at 2.[24] The

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[21] *See* NMFS, Letter from Kim Kratz, Assistant Regional Adminstrator West Coast Region/Oregon and Washington Coastal Area Office to Shingo Yamazaki, Industrial Section, Washington Department of Ecology, Re: Weyerhauser NPDES Concerns, Permit WA-0000124 (Dec. 20, 2013).

[22] *See* Letter from Steven W. Landino, Washington State Director for Habitat Conservation, NMFS, to Mike Gearheard, Director Office of Water and Watersheds, EPA Region 10 (May 4, 2007), *available at* http://www.ecy.wa.gov/programs/wq/stormwater/industrial/iswgpdraftpubcom/2007/nmfs.pdf (last viewed Aug. 24, 2015). We note that the Washington Department of Ecology is also clearly aware of this document as it was submitted as a comment during the 2007 public comment period. *See* Ecology, Water Quality, Industrial Stormwater General Permit, Historical Information, *available at* http://www.ecy.wa.gov/programs/wq/stormwater/industrial/iswgpdraftpubcom/2007/nmfscopper2.pdf (last viewed Aug. 24, 2015).

[23] *See* Letter from Angela Somma, Chief, Endangered Species Division, NMFS to James A. Hanlon, Director Office of Wastewater, EPA, Re: Docket ID No. OW-2005-0007 (Feb. 15, 2006) *available at* http://www.ecy.wa.gov/programs/wq/stormwater/industrial/iswgpdraftpubcom/2007/nmfs3.pdf (last viewed Aug. 24, 2015).

[24] For EPA's better understanding of the role of copper in suppressing predator avoidance behavior, we have attached a short video. *See* Salmon fry with copper video (obtained from NMFS). The video shows two tanks with salmonid fry, one with zero copper and with copper at a concentration of 10 µg/l. At the point when the light in the top center of the screen changes from green, for "before alarm odor," to red, "alarm odor added," indicating the presence of a predator, the fry in the copper-free tank can be observed taking immediate predator avoidance response action, namely by ceasing all movement. The fry in the copper-contaminated tank continue swimming rapidly, obvious to the need to respond to the threat of a predator.

technical paper[25] cited a "large body of scientific literature" that has shown that fish behaviors can be disrupted at concentrations of dissolved copper in a range that "fall[s] within the range of other sublethal endpoints affected by [dissolved copper] such as behavior, growth, and primary production, which is 0.75–2.5 µg/L." *Id*. at ix. NMFS also cited copper's adverse effects on salmonid disease and stress resistance. *Id*. at 31-32. Finally, the technical paper made clear the regulatory ramifications of Washington's inadequate aquatic life criteria for copper:

> Point and nonpoint source discharges from anthropogenic activities frequently exceed these [NMFS] thresholds by one, two, and sometimes three orders of magnitude, and can occur for hours to days. The U.S. Geological Survey ambient monitoring results for [dissolved copper] representing 811 sites across the United States detected concentrations ranging 1–51 µg/L, with a median of 1.2 µg/L. Additionally, typical [dissolved copper] concentrations originating from road runoff from a California study were 3.4–64.5 µg/L, with a mean of 15.8 µg/L. Taken together, the information reviewed and presented herein indicates that impairment of sensory functions important to survival of juvenile salmonids is likely to be widespread in many freshwater aquatic habitats. Impairment of these essential behaviors may manifest within minutes and continue for hours to days depending on concentration and exposure duration. Therefore, [dissolved copper] has the potential to limit the productivityand intrinsic growth potential of wild salmon populations by reducing the survival and lifetime reproductive success of individual salmonids.

Id. at x. NMFS concluded that "more than minor detrimental effects on salmon and their prey base will occur" from the proposed issuance of the Washington industrial stormwater permit. Letter, *supra* n. 22, at 2. Subsequently, in 2008, NMFS again wrote EPA concerning the draft permit, and again highlighting the hazards of copper and zinc and reminding EPA of its obligations under the Endangered Species Act. NMFS pointed to the inadequacy of the Washington water quality standards, concluding that it expected to "engage in further discussions that should help inform both national water quality standards and state water quality standards. We expect that consultation to consider not only copper but also other heavy metals of concern."[26] Finally, the next year, NMFS again wrote EPA, exhibiting even greater frustration :

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[25] NMFS, *An Overview of Sensory Effects on Juvenile Salmonids Exposed to Dissolved Copper: Applying a Benchmark Concentration Approach to Evaluate Sublethal Neurobehavioral Toxicity*, NOAA Technical Memorandum NMFS-NWFSC-83 (Oct. 2007), *available at* http://www.nmfs.noaa.gov/pr/pdfs/consultations/copper_salmon_nmfsnwfsc83.pdf (last viewed Aug. 20, 2015).

[26] Letter from Steven W. Landino, Washington State Director for Habitat Conservation, NMFS, to Mike Gearheard, Director Office of Water and Watersheds, EPA Region 10 (Jan. 10, 2008) *available at* http://www.ecy.wa.gov/programs/wq/stormwater/industrial/iswgpdraftpubcom/jan2008/noaa.pdf (last viewed Aug. 24, 2015) at 2; *see also id.*, Attachment A at 1 (noting effects of zinc occur at 10 to 20 times lower than the permit benchmarks and that effects of copper for dischargers to impaired waters would be 3.5 and 14 times higher than levels at which copper and zinc cause adverse effects to salmon, respectively).

> We have identified in the past through meetings, e-mails, and correspondence (between NMFS, EPA and Ecology) our concerns about copper and zinc levels allowed by this permit. Adverse effects of dissolved copper and zinc on listed salmon occur at very low levels (values ranging from 0.18 to 2.1 µg/L in freshwater for copper (Hecht et. al, 2007) and at 5.6 µg/L in freshwater for zinc (Sprague 1968)). Adverse effects of copper include interference with fish sensory systems and important behaviors that underlie predator avoidance, juvenile growth and migratory success. These effects occur at pollutant levels that are 6 to 77 times lower than the proposed benchmark level for total copper (14 µg/L). Similarly, adverse effects of zinc include altered behavior, blood and serum chemistry, impaired reproduction, and reduced growth. These effects occur at pollutant levels that are 35 and 45 times lower than the proposed total zinc benchmark levels (200 µg/L for Western Washington and 255 µg/L for Eastern Washington). In addition, the proposed benchmark level for zinc in this permit (200 and 255 µg/L total Zn) is higher than the level proposed for the 2007 Industrial permit (115 µg/L total Zn). We do not believe these proposed benchmark levels avoid more than minor detrimental effects to listed salmon and steelhead.
>
> Given that copper has adverse effects on listed fish at very low levels, we are surprised that Ecology has proposed in this permit to eliminate the requirement for facilities to conduct monitoring for copper when zinc benchmarks are exceeded in stormwater discharges. Instead Ecology is proposing to use total zinc as the representative metal for core sampling and apply copper sampling requirements to only 5 sectors of industrial facilities. With the proposed benchmark level for zinc set at a level that does not provide protection necessary for salmon growth and survival, and with copper being identified as a widespread pollutant in industrial facilities, we do not believe using zinc as a surrogate of copper and limiting copper monitoring to 5 sectors will adequately protect listed salmon.[27]

As EPA knows, it has not completed consultation with NMFS, or with U.S. Fish and Wildlife Service on national recommended criteria and it has taken no action to consult on, let alone revise, Washington's water quality criteria for the protection of aquatic life from toxic pollutants.

Sediment Contamination Regulation

Finally, as EPA knows, sediment contamination by toxic pollutants is a serious problem in Puget Sound and throughout the state. New and revised aquatic life criteria play an important role in ensuring that Washington's sediment quality program works to protect aquatic life. Just as in the CWA, Washington's sediment management standards require an annual review and triennial

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[27] Letter from Steven W. Landino, Washington State Director for Habitat Conservation, NMFS to Mike Gearheard, Director Office of Water and Watersheds, EPA Region 10 (July 15, 2009) *available at* http://www.ecy.wa.gov/programs/wq/stormwater/industrial/iswgpdraftpubcom/june2009/noaa.pdf (last viewed Aug. 24, 2015) at 1.

updating. *See* WAC 173-204-130(6). When evaluating the need for "necessary revisions," Ecology is required to consider, *inter alia*, "[n]ew state or federal laws which have established environmental or human health protection standards applicable to surface sediment." WAC 173-204-130(7), (7)(d). This would include new and revised aquatic life criteria adopted or approved by EPA. These sediment quality criteria address many of the pollutants for which EPA had new or updated national recommended 304(a) criteria since 1992, as discussed at page 59 of NWEA's 2013 petition.[28] In addition, new or revised aquatic life criteria, were they adopted by or for Washington, could be considered "requirements in other applicable laws" that set both the clean-up screening levels and sediment clean-up objectives used to establish upper and lower limits of clean-up standards. *See* WAC173-204 -560(3)(iv), 4(iv). EPA's action to update Washington's aquatic life criteria would thus have a significant beneficial impact on the state's sediment quality regulations and meeting program goals.

Conclusion

In summary, EPA is well aware of the implications of using Washington's outdated aquatic life criteria in Clean Water Act regulatory programs and associated efforts to attain and maintain water quality to protect designated uses in Washington's waters. As our 2013 petition made clear, using these out-of-date aquatic life criteria for section 303(d) water quality assessments, NPDES discharge permits, Total Maximum Daily Load (TMDL) clean-up plans, and other regulatory actions is reprehensible, particularly given the importance of restricting toxic pollutants to allow for the recovery of threatened and endangered species.

Once again, we urge you to grant our petition to update and revise Washington's aquatic life criteria.

Sincerely,

Nina Bell
Executive Director

cc: Ken Kopocis, Deputy Assistant Administrator for Water
Betsy Southerland, Director, Office of Science and Technology
Sara Hisel-McCoy, Director, Standards and Health Protection Division
Betsy Behl, Director, Health and Ecological Criteria Division
Dennis McLerran, Regional Administrator Region 10 (attachments by mail)
Dan Opalski, Director, Region 10 Office of Water and Watersheds
Angela Chung, Manager, Region 10 Water Quality Standards Unit

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[28] *See* WAC 173-204-320 (marine sediment quality standards established for pollutants such as copper, zinc, lead, cadmium, chromium);WAC 173-240-420 (same for sediment impact zone maximum criteria); WAC 173-204-562 (same for marine sediments cleanup objectives and cleanup screen levels chemical criteria); WAC 173-204-563 (same for freshwater sediment cleanup objectives and cleanup screening levels chemical criteria).

Attachments (on compact disk):

1. FWS, *Biological Opinion for the Idaho Water Quality Standards for Numeric Water Quality Criteria for Toxic Pollutants, 01EIFW00-2014-F-0233* (June 25, 2015).
2. NMFS, *Final Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Water Quality Toxics Standards for Idaho* (May 7, 2014).
3. NMFS, *Jeopardy and Adverse Modification of Critical Habitat Biological Opinion for the Environmental Protection Agency's Proposed Approval of Certain Oregon Administrative Rules Related to Revised Water Quality Criteria for Toxic Pollutants* (Aug. 14, 2012).
4. EPA, *Puget Sound Georgia Basin Transboundary Ecosystem Indicator Report* (2006)
5. EPA, NMFS, *Potential Effects of PBDEs on Puget Sound and Southern Resident Killer Whales A Report on the Technical Workgroups and Policy Forum* (July 24, 2013)
6. EPA, *Puget Sound Georgia Basin Ecosystem Indicator Report, Executive Summary Marine Species at Risk* (Oct. 2006)
7. EPA, *Puget Sound Georgia Basin Ecosystem Indicator Report, Executive Summary, Toxics in Harbor Seals* (Oct. 2006)
8. EPA, *Salish Sea, Southern Resident Killer Whales*
9. EPA, *Salish Sea, Toxics in the Food Web: Pacific Herring and Harbor Seals*
10. NMFS, *Recovery Plan for Southern Resident Killer Whales (Orcinus orca)* (Jan. 17, 2008)
11. NMFS, *Southern Resident Killer Whales: 10 Years of Research & Conservation* (June 2014)
12. NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the on-going National Flood Insurance Program carried out in the Puget Sound area in Washington State. HUC 17110020 Puget Sound* (Sept. 22, 2008)
13. WDF&W, *Toxic Contaminants in Puget Sound Fish and Shellfish*
14. Ecology, *Focus on Puget Sound, Toxics in surface runoff to Puget Sound* (May 2011)
15. Ecology, *Control of Toxic Chemicals in Puget Sound: Phase 3 Data and Load Estimates* (April 2011)
16. Ecology, *Western Washington NPDES Phase I Stormwater Permit, Final S8.D Data Characterization 2009-2013* (Feb. 2015)
17. NMFS, *Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation Evaluation of 2010-2014 Puget Sound Chinook Harvest Resource Management Plan under Limit 6 of the 4(d) Rule Impacts of Programs Administered by the Bureau of Indian Affairs that Support Puget Sound Tribal Salmon Fisheries* (May 24, 2011)
18. NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Interstate 405 State Route 169 to Interstate 90 Congestion Relief - Renton to Bellevue Improvement, King County, Washington. (6th Field HUCs, 171100120302, Cedar River and 171100120106, Lower Cedar River)* (Jan. 3, 2007)
19. NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Interstate 405 Congestion Relief and Bus Rapid Transit Projects - Renton Nickel Improvement, King County, Washington. (HUC, 171100130399, Lower Green River and 171100120106, Lower Cedar River)* (Sept. 20, 2006)

20. EPA, *EPA focusing on industrial stormwater compliance, targeting a serious threat to Puget Sound water quality* (Aug. 26, 2013)
21. NMFS, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Salmon Creek Interchange Improvement Project, Clark County, Washington. (6th Field HUCs, Salmon Creek 170800010901)* (March 20, 2009)
22. NMFS, Letter from Kim Kratz, Assistant Regional Adminstrator West Coast Region/Oregon and Washington Coastal Area Office to Shingo Yamazaki, Industrial Section, Washington Department of Ecology, Re: Weyerhauser NPDES Concerns, Permit WA-0000124 (Dec. 20, 2013)
23. NMFS, *An Overview of Sensory Effects on Juvenile Salmonids Exposed to Dissolved Copper: Applying a Benchmark Concentration Approach to Evaluate Sublethal Neurobehavioral Toxicity*, NOAA Technical Memorandum NMFS-NWFSC-83 (Oct. 2007)
24. Letter from Steven W. Landino, Washington State Director for Habitat Conservation, NMFS, to Mike Gearheard, Director Office of Water and Watersheds, EPA Region 10 (May 4, 2007)
25. Letter from Angela Somma, Chief, Endangered Species Division, NMFS to James A. Hanlon, Director Office of Wastewater, EPA, Re: Docket ID No. OW-2005-0007 (Feb. 15, 2006)
26. Letter from Steven W. Landino, Washington State Director for Habitat Conservation, NMFS, to Mike Gearheard, Director Office of Water and Watersheds, EPA Region 10 (Jan. 10, 2008)
27. Letter from Steven W. Landino, Washington State Director for Habitat Conservation, NMFS to Mike Gearheard, Director Office of Water and Watersheds, EPA Region 10 (July 15, 2009)
28. Salmon fry with copper video (obtained from NMFS)

BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

Petition for Rulemaking	)
Under the Clean Water Act	)
	)
Water Quality Criteria for Toxics	)
in the State of Washington	)

I. Introduction

For the reasons detailed below, Northwest Environmental Advocates ("NWEA") hereby petitions the U.S. Environmental Protection Agency ("EPA") to update the State of Washington's water quality standards for the protection of human health and aquatic life from toxic contaminants. EPA's inaction to date is deplorable in light of the evidence it has accumulated over the last two decades that members of American Indian tribes, ethnic populations, and the general public in Washington consume far more fish and shellfish than Washington's current water quality standards assume. EPA's failure to update Washington's aquatic life criteria is equally inexcusable in light of the impacts of toxic chemicals on threatened and endangered species, such as salmon, steelhead, and the orca whale.

This petition is brought pursuant to the Administrative Procedure Act, 5 U.S.C. §§ 553(e) and 555(e), to request EPA take the following actions: (1) make a determination (or affirm a previously made determination[1]) pursuant to Section 303(c)(4)(B) of the Clean Water Act ("CWA") that the State of Washington's water

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[1] In *Puget Soundkeeper Alliance, et al. v. EPA, et al.,* No. 2:13-cv-01839-JCC (W.D. Wash., filed Oct. 11, 2013), plaintiffs have alleged the agency has already made a determination that Washington's human health criteria are inadequate. Either, as that lawsuit alleges, EPA has already made such a determination and now has a mandatory duty to promulgate new criteria for Washington, or pursuant to this petition, EPA must make such a determination.

quality toxic criteria for the protection of human health, set out in 40 C.F.R. § 131.36(d)(14), fail to provide full protection for its designated uses; (2) determine that the State of Washington has failed to adopt such human health and aquatic life criteria as are required by Section 303(c)(2)(B) in each triennial review of its water quality standards conducted since 1992; and (3) promulgate federal regulations applicable to Washington, pursuant to Section 303(c)(4), setting forth new and revised water quality standards as necessary to meet the requirements of the CWA.

EPA has a heightened responsibility to remedy the long outstanding deficiencies in Washington's water quality toxic criteria for the protection of human health because those criteria were established by EPA in the National Toxics Rule ("NTR").[2] The NTR human health criteria, adopted in 1992, are based on the then-applicable national default average fish consumption rate of 6.5 grams of fish and shellfish (hereinafter collectively "fish") per day (the equivalent of 6.9 ounces of fish per month or 2.3 three ounce-servings each month). The national average fish consumption rate, as well as the methodology for deriving the human health criteria used in the NTR, were developed by EPA in 1980, over three decades ago.[3] The NTR was EPA's response to Congressional amendments made to the CWA in 1987 that required states to update their toxic criteria

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[2] EPA, *Water Quality Standards; Establishment of National Criteria for Priority Toxic Pollutants; States' Compliance*, Final Rule, 57 Fed. Reg. 60848 (Dec. 22, 1992) (hereinafter "NTR Final Rule Notice") at 60848-60923; 40 C.F.R. § 131.36(d)(14).

[3] EPA, *1980 Ambient Water Quality Criteria National Guidelines*, 45 Fed. Reg. 79318 (Nov. 28, 1980). EPA supplemented these criteria documents in additional 304(a) recommended criteria issued in 40 Fed. Reg. 5831 (Feb. 15, 1984), 50 Fed. Reg. 30784 (July 29, 1985), and EPA, *Quality Criteria for Water 1986*, EPA 440/5-86-001 (May 1, 1986) available at http://water.epa.gov/scitech/swguidance/standards/upload/2009_01_13_criteria_goldbook.pdf (last visited Oct. 14, 2013).

every time they updated their water quality standards, an interval expected to take place every three years.[4]

Since it established the NTR over two decades ago, EPA has updated its guidance for deriving human health toxic water quality criteria in its *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)* (hereinafter "2000 Methodology"), to, *inter alia*, increase its national default average fish consumption rate from 6.5 grams/day to 17.5 grams/day (the equivalent of 18.5 ounces of fish per month or 6.2 three ounce-servings each month).[5] EPA also updated its CWA Section 304(a) recommended criteria to reflect this change in the national default fish consumption assumption.[6] For subsistence fishers, EPA recommended a national default consumption rate of 142.4 grams/day. In this *2000 Methodology*, EPA also adopted guidance directing states to use local data on fish consumption when it was available. This national policy was adopted 13 years ago.

EPA's national policy is validated by a body of evidence in Washington that demonstrates the average fish consumers in the state eat more than the current national default average of 17.5 grams/day and some populations of Washington citizens consume far more than the national average and, indeed, more than the EPA recommended default rate of 142.4 grams/day for subsistence fishers. EPA became aware of the fact that members of Columbia River tribes consumed from 6 to 11 times the national estimate

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[4] 33 U.S.C. § 1313(c)(2)(B).

[5] EPA, *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)*, EPA-822-B-00-004 (Oct. 2000), 65 Fed. Reg. 66443 (Nov. 3, 2000) (hereinafter "2000 Methodology") available at http://water.epa.gov/scitech/swguidance/standards/upload/2005_05_06_criteria_humanhealth_method_complete.pdf (last visited Oct. 14, 2013).

[6] *See infra* Section V.

used by EPA 18 years ago. Since then, in 1994, 1997, and again in 2000, EPA has accumulated additional evidence of the NTR's gross inadequacy to protect public health in Washington.

As a consequence, EPA has repeatedly concluded that Washington's standards are not protective and must be updated. Most recently, EPA Regional Administrator Dennis McLerran wrote Washington Department of Ecology ("Ecology") Director Maia Bellon urging state action because "since 1992, several national, regional, and local surveys have been conducted that provide scientifically sound information that fish consumption levels are considerably higher than 6.5 grams per day in Washington."[7] In fact, on the basis of some of these studies, EPA has already disapproved Oregon's[8] and Idaho's[9] use of the current national default fish consumption level of 17.5 grams/day. The State of Washington agrees with these findings. Former Ecology Director Ted Sturdevant has acknowledged these studies demonstrate that "Washington has some of the highest fish-consuming communities in the country, but we are currently using the lowest fish consumption rate in our standards[.]"[10]

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7 Letter from Dennis McLerran, EPA Region 10 Regional Administrator, to Maia Bellon, Director, Ecology (June 21, 2013).

8 EPA, Letter from Michael Bussell, EPA Region 10 to Neil Mullane, Oregon DEQ *Quality Re: EPA's Action on New and Revised Human Health Water Quality Criteria for Toxics and Revisions to Narrative Toxics Provisions in Oregon's Water Quality Standards* (June 1, 2010) available at http://www.epa.gov/ region10/pdf/water/oregon-hhwqc-tsd-letter_june2010.pdf (last visited Aug. 21, 2013).

9 Letter from Michael Bussell, EPA Region 10 to Barry Burnell, Idaho DEQ *Re: EPA Disapproval of New and Revised Human Health Water Quality Criteria for Toxics, Idaho Docket 58-0102-0503* at 3 (May 10, 2012) available at http://www.deq.idaho.gov/ media/854335-epa-disapproval-letter-human-health-criteria-051012.pdf.

10 Ecology, *Open Letter to Interested Parties Re: Final Fish Consumption Rates Technical Support Document* (Jan. 15, 2013).

Despite the evidence of high fish consumption levels in Washington, EPA's recommendations to the states, its changes to the 304(a) recommended criteria reflecting that recommendation, and its disapprovals in Oregon and Idaho, EPA has not updated its now outdated NTR to ensure Washington's standards are protective of designated uses and based on sound scientific rationale. EPA's failure to revise the NTR criteria for Washington, criteria which were only intended to protect the average consumer and were derived from the out-of-date and inaccurate value of 6.5 grams/day of fish consumption, places the public health and welfare in jeopardy and is inconsistent with Congressional intent and statutory requirements.

No better proof of EPA's arrant delinquency is needed beyond the agency's own words. In a 2002 report, EPA Region 10 concluded that adult tribal members in Washington who consumed fish for 70 years at their current rate of 48 meals per month "*may have cancer risks that are up to 50 times higher than those for the general public* who consume fish about once a month."[11] That report, now over 10 years old, states in its introduction that EPA first "became concerned about the potential health threat to Native Americans who consume fish from the Columbia River Basin" after reviewing the results of a 1989 national survey, published in 1992, 21 years ago.[12] EPA's continuing failure to act in light of the information it has had over the last two decades is indefensible and contrary to law.

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[11] EPA, *Fish Contaminant Survey*, Columbia River available at http://www2.epa.gov/columbiariver/fish-contaminant-survey (last visited Oct. 14, 2013)(emphasis added).

[12] EPA, Region 10, *Columbia River Basin Fish Contaminant Survey (1996-1998)* at E-1 (2002), EPA 910-R-02-006, available at http://yosemite.epa.gov/r10/oea.nsf/0/C3A9164ED2693 53788256C09005D36B7? OpenDocument (last visited May 2, 2012) (hereinafter "Columbia Contaminant Survey").

II. Jurisdiction and Authority of the Environmental Protection Agency

The CWA requires that states or EPA adopt water quality standards. Such standards must consist of the designated uses, the water quality criteria for waters based upon such uses, and antidegradation requirements.[13] The standards must protect the public health or welfare, enhance the quality of water and wherever attainable, provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water, taking into consideration their use and value of public water supplies, and agricultural, industrial, and other purposes including navigation.[14]

Water quality criteria must be adopted that protect the designated uses.[15] Water quality criteria are expressed as constituent concentrations, levels, and/or narrative statements, representing a quality of water that supports a designated uses.[16] Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use.[17] For waters with multiple use designations, the criteria shall support the most sensitive use.[18]

The discharge or presence of toxic pollutants in navigable waters may interfere with the designated uses adopted for such waters. The adoption of criteria for the protection of human health is required for water bodies designated for public water supply and where fish ingestion is considered an important activity included in a

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13 33 U.S.C. § 1313(c)(2)(A). *See also* 40 C.F.R. §§ 131.2, 131.3(i), 131.6.
14 33 U.S.C. § 1313(c)(2)(A).
15 40 C.F.R. § 131.11(a)(1).
16 40 C.F.R. § 131.3(b).
17 40 C.F.R. § 131.11(a)(1).
18 *Id*.

designated use.[19] The CWA requires that state toxic criteria be specific numerical criteria when they are available because EPA has published them as recommended criteria pursuant to Section 304(a).[20] EPA policy implementing this provision allows states to adopt statewide numeric criteria in their water quality standards for all toxic pollutants for which EPA has developed 304(a) recommended criteria, regardless of whether the pollutants are known to be present in navigable waters within the state.[21] Alternatively, states may adopt specific numeric criteria in water quality standards for toxic pollutants as necessary to support designated uses where such pollutants are discharged or are present in the affected waters and could reasonably be expected to interfere with designated uses. If this latter alternative is selected, water quality data and information on discharges must be reviewed to identify specific water bodies where toxic pollutants may be adversely affecting water quality or the attainment of the designated water use or where the levels of toxic pollutants are at a level to warrant concern and criteria for such toxic pollutants applicable to the waterbody sufficient to protect the designated use must be adopted. EPA expects similar determinations to occur during each triennial review of water quality standards as required by Section 303(c)(2)(B).[22]

In any instance when EPA determines that a new or revised standard is necessary to meet the requirements of the CWA, the Administrator shall promptly prepare and

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[19] EPA, *Water Quality Standards Handbook: Second Edition*, EPA-823-B-12-002 (March 2012), Chapter 3.1.1, available at: http://water.epa.gov/scitech/swguidance/standards/handbook/chapter03.cfm#section1, web version last updated April 20, 2012 (last visited May 3, 2012) (hereinafter "Standards Handbook").

[20] 33 U.S.C. § 1313(c)(2)(B).

[21] EPA, *Standards Handbook*, *supra* n. 19, at *State Options* available at http://water.epa. gov/scitech/swguidance/standards/handbook/chapter03.cfm#section4.

[22] *Id*.

publish proposed regulations setting forth a revised or new water quality standard.[23] This petition demonstrates that the facts in combination with EPA's regulations and guidance support the Administrator's making a determination that the human health criteria currently in place to protect Washington's designated uses are not fully protective and based on sound scientific rationale and, moreover, that Washington has failed to update its numeric human health criteria as required by Section 303(c)(2)(B) for every triennial review conducted since EPA adopted the NTR in 1992.

III. Toxics Contaminating Fish Tissue Threaten the Designated Uses Pertaining to Protection of Human Health in Washington State

Fish "are a lean, low-calorie source of protein" and "an important part of a healthy diet."[24] However, when water quality standards fail to adequately account for the level of fish and shellfish that people consume, the health benefits of eating fish can become overshadowed by risks associated with toxic contaminants accumulated in their tissue. Many toxic chemicals, such as polychlorinated biphenyls (PCBs), mercury, dioxins, chlordane, and DDT, linger in the sediments of waterbodies for long periods of time.[25] From there, they are taken in by bottom-dwelling plants and animals and passed up the food chain, becoming increasingly more concentrated along the way.[26] As a result, top predators, such as the walleye or largemouth bass "may have levels several orders of magnitude higher than the water."[27] People consuming such top predators are at risk of suffering health problems due to the levels of toxics in fish tissue. Likewise,

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[23] 33 U.S.C. § 1313(c)(4)(B).

[24] EPA, *Fish Consumption Advisories*, available at: http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/index.cfm (last visited Oct. 14, 2013).

[25] *Id.*

[26] *Id.*

[27] *Id.*

human consumption of fatty tissues in fish will increase their body burden of many toxics contaminants.[28] The health problems linked to such chemicals range broadly, from nausea and diarrhea, to adverse developmental, reproductive, and endocrine effects, to brain damage, cancer, and more.[29]

A. Toxic Contamination is Widespread in Washington's Waterbodies

Toxic contamination of fish and water is widespread in Washington. Use of traditional reporting mechanisms to assess the breath and severity of toxic pollution is hampered by agencies' limited resources to collect data and their reliance on inaccurate measuring sticks to identify if the data demonstrate a problem. Where, as in Washington, the water quality toxic criteria that constitute that measuring stick do not reflect levels that are protective, the results of such an evaluation will create the appearance that water quality is not as threatening to human health and aquatic life as it actually is. Where, as here, the toxic criteria are based on a level of human fish consumption that is under half that recommended by EPA as the national default and well under actual consumption levels, the assessments of water quality impairment will be themselves impaired. Even using these inadequate water quality criteria for assessment purposes, data demonstrate that Washington's waters are widely contaminated with unsafe levels of toxic pollution.

1. *CWA Section 305(b) Reports*

The CWA requires the identification of waters that are impaired by toxics in biennial reports submitted pursuant to CWA Section 305(b). The last complete 305(b)

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[28] EPA, *Should I Eat the Fish I Catch?: A guide to healthy eating of the fish you catch* available at http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/upload/1999_01_26_fish_fisheng.pdf (last visited Oct. 14, 2013).

[29] *Id.* ("Eating fish containing chemical pollutants may cause birth defects, liver damage, cancer, and other serious health problems"); *see also* Agency for Toxic Substances & Disease Registry, http://www.atsdr.cdc.gov/ (last visited May 1, 2012).

report published by the Washington Department of Ecology ("Ecology") was in 2002. The assessments in this report, which use a "sample survey approach," are extremely imprecise.[30] Of Washington's 70,439 miles of stream, 59 percent were purportedly assessed for fish consumption.[31] The report concluded that of this statewide total 41,507 miles of stream, nine percent (3,609 miles) rated "Fair" for fish consumption use and 13 percent (5,414 miles) rated "Poor,"[32] for a total of 22 percent of Washington stream miles clearly not supporting fish consumption uses. Whereas Ecology had no data to make this assessment for some of the state's eight ecoregions, it identified the Columbia Basin Ecoregion as having 40 percent of its stream miles rated "Poor" (10,138 miles) and 20 percent rated "Fair" (5,069 miles) for a total of 60 percent of the ecoregion's stream miles clearly not supporting fish consumption uses. Likewise, with regard to stream use impairments caused by toxic metals, Ecology identified the Columbia Basin Ecoregion as having 25,031 impaired miles of an assessed total of 25,345 miles, or 99 percent impaired.[33]

EPA's 2008 assessment data for Washington shed some additional light on these data.[34] Of 70,439 total stream miles in Washington, only 1,997 were found to have been

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[30] Ecology, *Washington State Water Quality Assessment: Year 2002 Section 305(b) Report* (June 2002) available at https://fortress.wa.gov/ecy/publications/publications/0203026.pdf (last visited Oct. 14, 2013). *See, e.g., id*. at 20 tbl.11 (precision of estimate on fish consumption use support of streams ranges up to +/-36 percent).

[31] *Id.* at 13 tbl. 3.

[32] *Id*. at 20 tbl. 11. The methodology for determining the ranking was as follows: "If 25% or greater of the data exceed any one criterion, support of the fish consumption use was assessed as considered 'poor'. If more than 11% but less than 25% of the data exceed the criterion, support of the use was considered 'fair'. If less than 10% of the data exceed the criterion, support of the use was to be considered 'good'." *Id*. at 4.

[33] *Id*. at 32 tbls. 32, 33.

[34] EPA, *Watershed Assessment, Tracking & Environmental Results, Washington Assessment Data for 2008*, available at http://ofmpub.epa.gov/tmdl_waters10/

assessed. Of those, 1,591, or 80 percent, were identified as impaired, the majority not for toxics. By contrast, causes of impairment for Washington's lakes, reservoirs, and ponds indicate significant acres of impairment with PCBs being the most substantial cause overall (76,036 acres), followed by dioxin (49,261 acres), DDE (26,126 acres), dioxins (21,394 acres), dieldrin (17,665 acres), mercury (15,640 acres), DDD (12,000 acres), chlordane (7,906 acres), DDT (4,500 acres), and a number of other pesticides (alpha-BHC, aldrin, toxaphene, heptachlor, and hexachlorobenzene) and metals (zinc, lead) all at or under 3,300 acres of impairment each.[35] Of the total assessed 376 square miles of ocean and near coastal waters, 200 square miles, or 53 percent, were found impaired.[36] Of those impairments, 26 square miles were deemed impaired from the results of sediment bioassays measuring total toxics, 16 square miles were impaired by PCBs, and over 50 toxic chemicals were found to have individually impaired between 0.4 and 14 square miles each of ocean and near coastal waters each.[37]

2. *CWA Section 303(d) Lists of Impaired Waters*

Section 303(d) of the CWA also requires the states to list impaired waters, for the regulatory purpose of developing Total Maximum Daily Loads ("TMDLs") to bring them

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attains_state.control?p_state=WA&p_cycle=2008&p_report_type=A (last visited Oct. 14, 2013).

[35] EPA, *Site-specific Targeted Monitoring Results Causes of Impairment Washington Lakes, Reservoirs, and Ponds 2008* available at http://iaspub.epa.gov/tmdl_waters10/attains_state.control?p_state=WA&p_cycle=2008&p_report_type=A#LAKE/RESERVOIR/POND (last visited Oct. 14, 2013).

[36] EPA, *Site-specific Targeted Monitoring Results Washington Ocean and Near Coastal 2008* available at http://ofmpub.epa.gov/tmdl_waters10/attains_state.control?p_state=WA&p_cycle=2008&p_report_type=A#OCEAN/NEAR%20COASTAL (last visited Aug. 12, 2013).

[37] EPA, *Site-specific Targeted Monitoring Results Causes of Impairment Washington Ocean and Near Coastal 2008* available at http://iaspub.epa.gov/tmdl_waters10/attains_state.control?p_state=WA&p_cycle=2008&p_report_type=A#OCEAN/NEAR%20COASTAL (last visited Aug. 12, 2013).

into compliance with water quality standards and to ensure that permits issued pursuant to CWA Section 402 are consistent with federal requirements. These assessments, too, are based on the NTR human health toxic criteria, rendering Washington's 303(d) list an inadequate assessment of risks to public health from toxics in Washington State. Even so, the 303(d) list demonstrates that Washington waters are contaminated with toxic chemicals. The 303(d) list for Washington's freshwaters is now outdated, having last been established five years ago in 2008, whereas EPA recently approved Washington's revised marine waters list in December 2012. Of assessed waters, Washington has listed a total of 1,460 waterbody segments as impaired for toxics. Of these, Washington has listed 444 waterbody segments as impaired for toxics and in need of a TMDL.[38] Another 631 waters are impaired for toxics but listed under Category 4B, rather than Category 5, by virtue of their being deemed under some purported effort to reduce pollution to meet currently-applicable water quality standards. Finally, the Category 4A list, comprised of impaired waters for which a TMDL has been completed to meet current standards but the waters of which remain contaminated, includes 378 waterbody segments. In addition, 185 waterbody segments were deemed to have data insufficient to determine whether water quality is impaired for toxic parameters.

3. *Toxics Release Inventory Data*

The Toxics Release Inventory (TRI) provides information on the volume of toxics being released into the environment into different media without evaluating its potential environmental and human health impacts. TRI data are made public pursuant to Section

[38] Ecology, *Water Quality Assessment for Washington 303(d)/305(b) Integrated Report Viewer* available at http://apps.ecy.wa.gov/wats/Default.aspx (last visited Oct. 15, 2013). Search conducted set at "Category 5" for 2008, all other variables set at "all," and parameters set to include all toxics.

313 of the Emergency Planning and Community Right-to-Know Act (EPCRA). EPA's 2011 TRI national analysis specifically evaluated two areas that together nearly cover the entirety of Washington State: the Columbia River Basin and Puget Sound. A total of 96.4 million pounds of pollutants were disposed of into all media on-site in the Columbia River Basin. According to EPA, "[i]n 2011, some of the largest sources of TRI chemicals in the Columbia River Basin included the land disposal of manganese, copper, lead, and zinc, as well as other metals from metal mines. Runoff from these areas, as well as wastewater effluent from numerous pulp and paper mills, is associated with degraded water quality. Hazardous waste management facilities had on-site land disposal, primarily of aluminum and zinc and lead and their compounds."[39] A total of 4.6 million pounds were disposed of on-site into the Puget Sound/Georgia Basin ecosystem. About this, EPA observed, "[f]ederal facilities had the largest on-site land disposal, primarily of lead. One pulp and paper mill reported large amounts of manganese compounds disposed of in an on-site landfill. These releases may make their way to the fresh and salt waters of the ecosystem and accumulate in the food chain as evidenced by elevated levels of these toxic chemicals in the tissues of some aquatic species in the ecosystem."[40]

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[39] EPA, *Toxics Release Inventory (TRI) Program, 2011 TRI National Analysis: Large Aquatic Ecosystems -- Columbia River Basin* available at http://www2.epa.gov/toxics-release-inventory-tri-program/2011-tri-national-analysis-large-aquatic-ecosystems-columbia (last visited Oct. 14, 2013).

[40] *Id*. at *2011 TRI National Analysis: Large Aquatic Ecosystems -- Puget Sound - Georgia Basin* available at http://www2.epa.gov/toxics-release-inventory-tri-program/2011-tri-national-analysis-large-aquatic-ecosystems-puget-sound (last visited Oct. 14, 2013).

4. *Special Studies on Toxics in Washington Waters*

Similar to the TRI's focus on Puget Sound and the Columbia River, the state and federal agencies also maintain that dual focus in other Washington water quality evaluations. For example, in a recent EPA report on the Columbia River, an evaluation which is limited to only four toxic contaminants, "mercury, DDT, PCBs, and PBDEs [were found] in the following species: juvenile salmon; resident fish (sucker, bass, and mountain whitefish); sturgeon; predatory birds (osprey and bald eagles); aquatic mammals (mink and otter); and sediment-dwelling shellfish (Asian clams)."[41] The report concludes that the "data are limited with regard to whether the contaminants are increasing or decreasing Basin-wide."[42] In evaluating data that demonstrate increases in mercury concentrations, EPA uses its own 304(a) recommended tissue criterion of 0.3-ppm mercury rather than Washington's much less protective NTR criteria applicable to Washington's waters for regulatory purposes.[43] However, in discussing decreasing DDT levels in the Yakima River, which previously had some of the highest concentrations of the pesticide in the nation, EPA uses what it terms an "EPA human health guideline for safe fish consumption = 32 ppb,"[44] which is the fish tissue equivalent of the currently applicable NTR criterion of 0.00059 ppb,[45] and in discussing PCB levels, EPA uses an

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[41] EPA, *Columbia River Basin: State of the River for Toxics – January 2009* at 1 (2009) (hereinafter "Columbia Toxics Report") available at http://www2.epa.gov/sites/production/files/documents/columbia_state_of_the_river_report_jan2009.pdf (last visited Oct. 14, 2013).

[42] *Id*. at 15.

[43] *Id*. at 18.

[44] *Id*. at 20.

[45] 40 C.F.R. § 131.36(b)(1); Email from Helen Rueda, EPA, to Nina Bell, NWEA, *Re: small question* (Aug. 20, 2013).

"EPA Human Health Guideline for Fish Consumption – 5.3 ppb,"[46] which is the fish tissue equivalent of the NTR criterion for protection of human health of 0.00017 ppb.[47] EPA's comparing water quality and tissue data to criteria it has deemed inadequate demonstrates how EPA's own evaluation of toxic contamination in Washington is misleading.

Following the results of the Columbia River Intertribal Fish Commission ("CRITFC") fish consumption survey that found members of Columbia River tribes consumed from 6 to 11 times the national estimate used by EPA, EPA and the CRITFC member Tribes conducted a survey of contaminants in fish tissue.[48] The study concluded

> The chemicals which were estimated to contribute the most to potential health effects (PCB, DDE, chlorinated dioxins and furans, arsenic, mercury) are the chemicals for which regulatory strategies need to be defined to eliminate or reduce these chemicals in our environment.[49]

In a draft report on the Puget Sound,[50] the Puget Sound Partnership evaluated the "vital signs" for a human health goal that includes toxics in fish, concluding there are worrisome levels of "contaminants in fish tissue (especially PCB contamination in flat fish from central Sound urban bays and in salmon from south and central Puget Sound)"[51] and noted that a "variety of fish species continue to show contamination by persistent, bioaccumulative toxic chemicals and estrogen disrupting compounds [that] points to

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46 EPA, *Columbia Toxics Report*, *supra* n. 41, at 23.

47 *Id.*

48 EPA, *Columbia Contaminant Survey*, *supra*, n. 12, at E-1. CRITFC Tribes are the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation.

49 *Id*. at 11-229.

50 Puget Sound Partnership, *2012 State of the Sound: A Biannual Report on the Recovery of Puget Sound* (2012) available at http://www.psp.wa.gov/downloads/SOS2012/sos2012_110812pdfs/SOS2012_ALL_110812.pdf (last visited Oct. 14, 2013).

51 *Id*. at 21.

potential impacts throughout the food chain, especially for apex predators like orca whales and upper food-chain species like salmon and people."[52] Earlier studies on piscivorous birds and mammals in Puget Sound found troubling levels of toxic contaminants:

> Puget Sound harbor seals at once time had the highest measured levels of PCBs and DDTs in the world. These levels have decreased, but remain high. English sole from several urban bays have an alarming prevalence of liver diseases. Birds wintering in Commencement Bay show significant increases in tissue contaminants over the four months in which they feed in Commencement Bay sediments.
>
> * * *
>
> In addition, people who depend almost exclusively on Puget Sound seafood for subsistence, or who consume whole organisms, may be exposed to higher levels of contaminants than estimated in studies used to assess human health threats.[53]
>
> Reproductive success has remained low for the past 13 years in bald eagles nesting near Hood Canal. . . . [B]ald eagle eggs in the Hood Canal areas contain high levels of PCBs; these levels have been associated with reproductive failures in other studies.[54]

A study conducted by Ecology in 2001 evaluated toxic contaminants in fish tissue and surface water in Washington freshwater environments.[55] Ecology sampled edible muscle tissue from five species commonly captured and likely to be consumed by people collected from 13 lakes and one river.[56] A total of 147 fish were processed in composite samples with the following results: all six samples exceeded the NTR criterion for PCBs,

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52 *Id*. at 22

53 Puget Sound Water Quality Authority, *1993 Puget Sound Update: Fourth Annual Report of the Puget Sound Ambient Monitoring Program* 2 (Dec. 1993).

54 Puget Sound Water Quality Authority, *1994 Puget Sound Update: Fifth Annual Report of the Puget Sound Ambient Monitoring Program* 3 (Feb. 1995, revised Dec. 1995).

55 Ecology, *Toxic Contaminants in Fish Tissue and Surface Water in Freshwater Environments, 2001*, Publication No. 03-03-012 at 2 (March 2003) available at https://fortress.wa.gov/ecy/publications/publications/0303012.pdf (last visited Oct. 14, 2013).

56 *Id*. at 3-4.

two of six samples exceeded the NTR criterion for 4,4'-DDE, one of six total chlordane concentrations far exceeded the NTR criterion, and four of four samples contained polychlorinated dibenzo-p-furans (PCDD/F) at one to two orders of magnitude greater than NTR criteria.[57]

Demonstrating the difference between the NTR criteria applicable in Washington and EPA's current 304(a) recommended methylmercury criterion, Ecology found that of 108 fish analyzed separately

> Mercury was detected in all tissue samples analyzed. About *17% of the samples* [16 samples] exceeded EPA's proposed Water Quality Criterion for the Protection of Human Health of 300 ppb ww. The NTR criterion of 825 ppb ww *was exceeded by one sample* with a mercury concentration of 1280 ppb ww.[58]

As Ecology points out, evaluating the samples using the NTR criterion means using 825 parts per billion wet weight (ppb ww), which is based on 6.5 grams/day fish consumption, versus using the EPA 304(a) recommended mercury criterion of 300 ppb ww, which is based on the national default rate of 17.5 grams/day fish consumption. The results provide a radically different result in the determination of impaired uses even using the national default fish consumption rate that EPA has already disapproved in both Oregon and Idaho.[59] Demonstrating further the inadequacy of Washington's current regulatory criteria, Ecology concludes that evaluating the data against the EPA screening value of mercury for subsistence fishers of 49 ppb ww, results in 93 percent of samples exceeding the acceptable level.[60] Figure 3 of this report graphically, reproduced immediately below, represents the NTR criterion compared to three EPA criteria or

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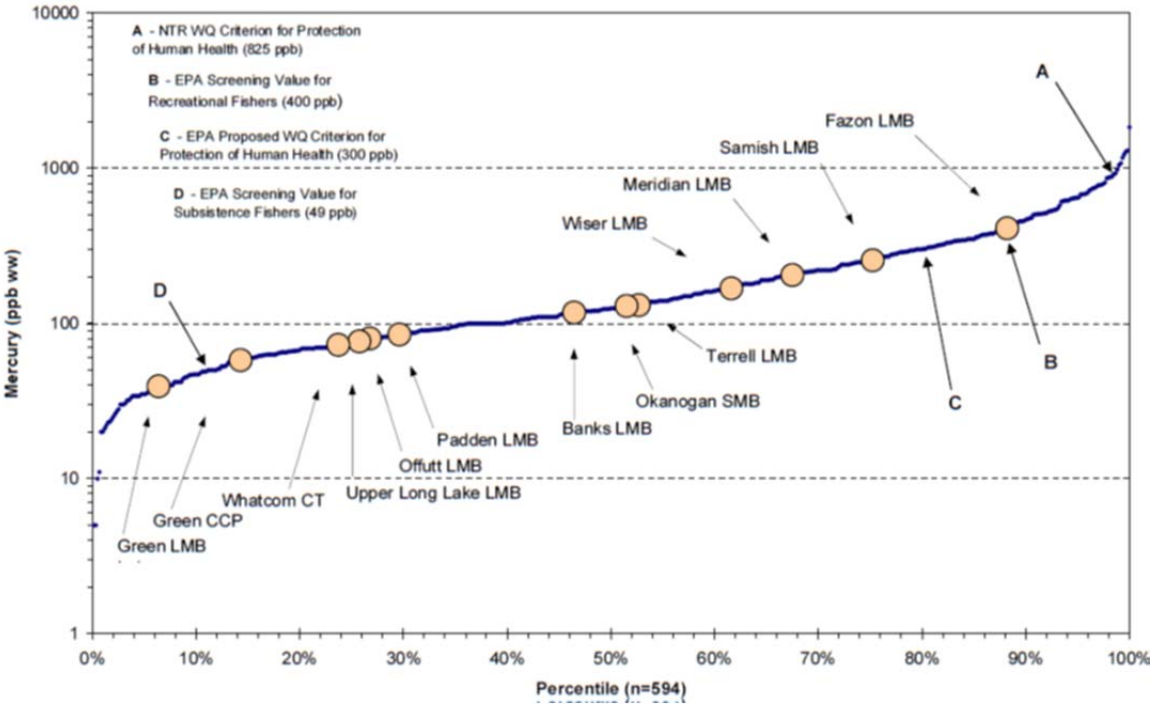
57 *Id*. at v, 10.
58 *Id*. at v, vii. (emphasis added).
59 *See infra* at Section IX.
60 Ecology, *supra* n. 55, at 15.

screening values and how many of the fish tissue samples in this study, augmented with data from EPA and the U.S. Geological Survey ("USGS"), would be considered as demonstrating impairment.[61]



In a subsequent report studying 2007 data, Ecology presented data, a portion of which is reproduced immediately below, demonstrating the difference between EPA recommended 304(a) criteria and Washington's NTR criteria, for total PCBs (64 pg/l versus 170 pg/l), dieldrin (52 pg/l versus 140 pg/l), toxaphene (280 pg/l versus 730 pg/l), p,p'-DDE (220 pg/l versus 590 pg/l), and p,p'-DDD (310 pg/l versus 830 pg/l).[62]

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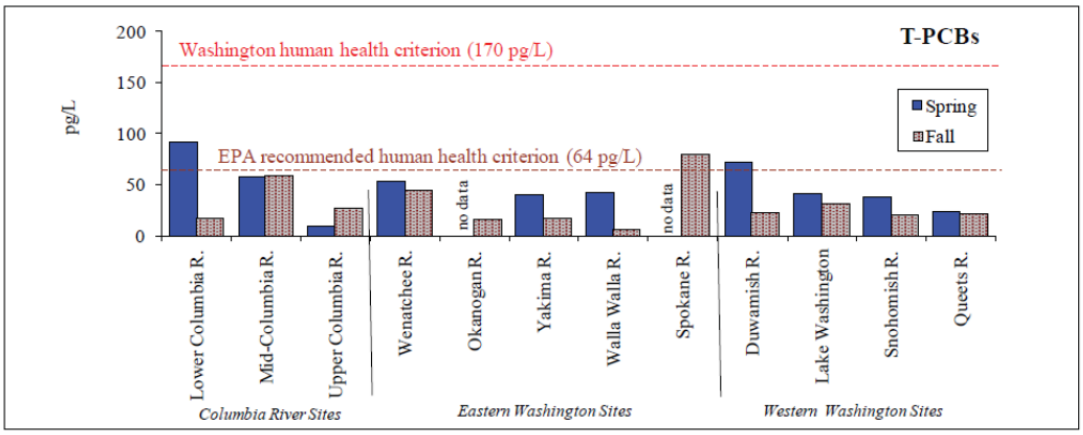
61 *Id*. at 18.

62 Ecology, *Trends Monitoring for Chlorinated Pesticides, PCBs, and PBDEs in Washington Rivers and Lakes, 2007* at 39 fig. 15 (March 2009) available at https://fortress.wa.gov/ecy/publications/summarypages/0903013.html (last visited Aug. 23, 2013).



This study demonstrates that even Ecology knows it cannot rely on its outdated toxic criteria to appropriately gauge water quality impairments. In a study of data from the next year, 2008, Ecology once again used both the NTR criteria and the EPA recommended 304(a) criteria, demonstrating, *inter alia*, the difference in regulatory results: "Seven sites did not meet (exceeded) the Washington State human health criterion (170 pg/L) [for PCBs], and all sites except the Queets River reference site exceeded the EPA national recommended [PCB] human health criterion (64 pg/L)."[63] This was demonstrated by the figure reproduced below.

63 Ecology, *Trend Monitoring for Chlorinated Pesticides, PCBs, PAHs, and PBDEs in Washington Rivers and Lakes, 2008* at 46 (April 2010) available at https://fortress.wa.gov/ecy/publications/summarypages/1003027.html (last visited Aug. 23, 2013).

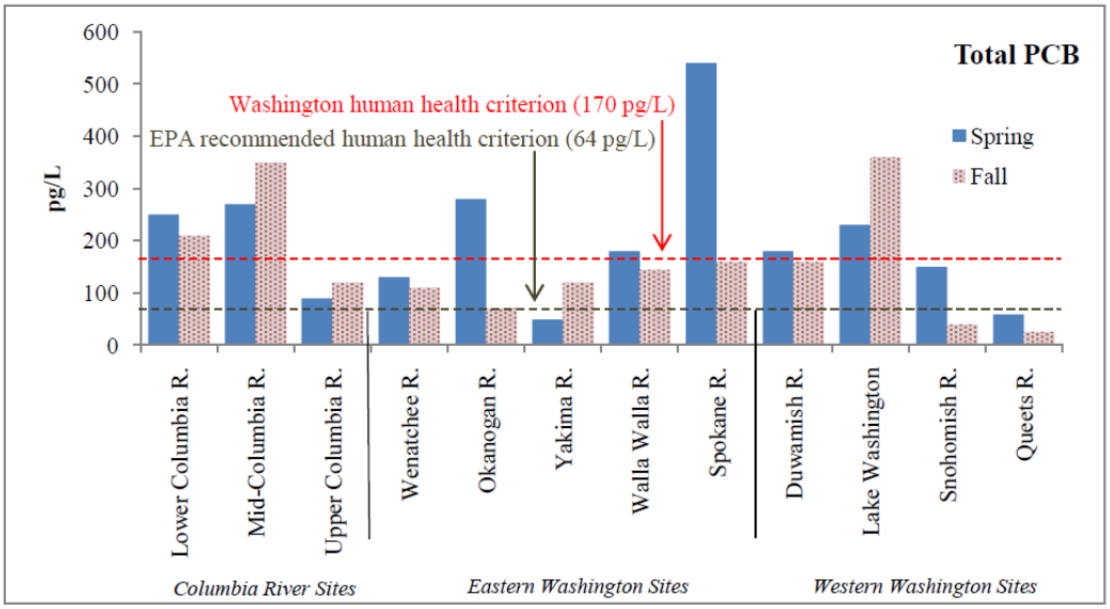


Figure 20. Estimated Total Concentrations of Total PCBs Compared with Washington State and EPA National Human Health Criteria.

Ecology also presented the data comparing data from the 2007 and 2008 sampling years by showing which criteria were violated, EPA's 304(a) recommended criteria, or the NTR regulatory criteria, again demonstrating the agency's own reluctance to rely on outdated criteria. Similar results and comparisons were reported for 2009 data, as shown in the figure below.[64]

[64] Ecology, *Monitoring with SPMDs for PBTs in Washington Waters in 2009* at 47 fig. 12 (May 2011) available at https://fortress.wa.gov/ecy/publications/summarypages/1103029.html (last visited Aug. 23, 2013).

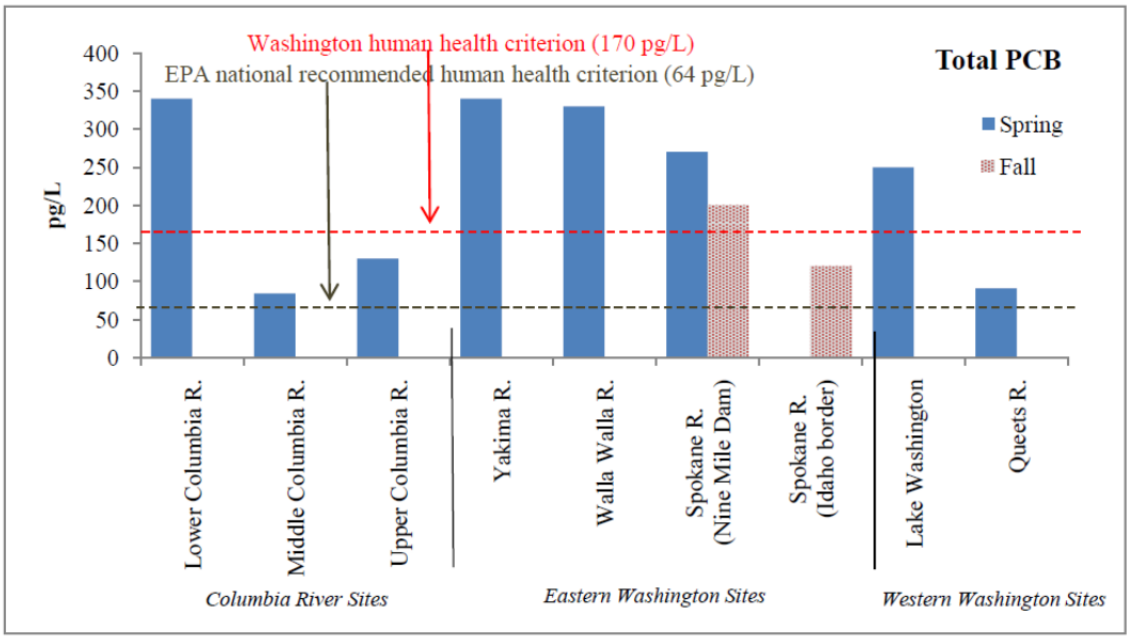


Figure 12. Estimated Total Concentrations of Total PCBs Compared with Washington State and EPA National Human Health Criteria. (nd = not detected.)

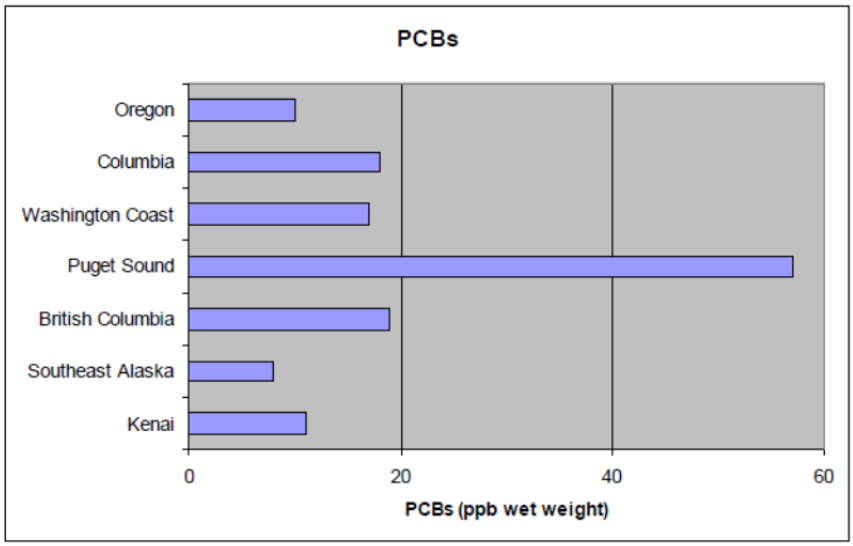
Ecology likewise has pointed to the levels of toxic contaminants in Puget Sound as support for its own much-delayed efforts to develop appropriate fish consumption rates from which to derive new human health toxic criteria. The agency has highlighted high levels of lead, cadmium, tributyl tins, copper, mercury, arsenic, PCBs, PAHs, dioxins and furans, pesticides, phthalate esters, polybrominated diphenyl ethers (PBDEs), hormone disrupting chemicals (Bisphenol A), petroleum & petroleum by-products, and pharmaceuticals in Puget Sound waters.[65] Not only is the scope of toxic chemicals in Washington's waters sweeping but the levels of these chemicals demonstrate the high body burdens in Puget Sound as compared to other locations of salmonids. For example,

[65] Ecology, *Fish Consumption Rates Technical Support Document: A Review of Data and Information about Fish Consumption in Washington, Version 2.0 Final* C-11(Jan. 2013) (hereinafter "Final FCR Report") available at https://fortress.wa.gov/ecy/publications/publications/1209058.pdf (last visited Aug. 23, 2013).

Ecology reports that "Puget Sound Chinook salmon fillets are almost three times more contaminated than fillets of Chinook salmon from other Pacific West Coast areas"[66] and

> PCBs and polybrominated diphenyl ethers (PBDEs) in whole body samples of individual summer/fall Chinook salmon from Puget Sound were 2 to 6 times more contaminated with PCBs and 5 to 17 times more contaminated with PBDEs than other populations of Chinook salmon from the Pacific West coastal areas.[67]

This is represented graphically in the Ecology report by the following figure:



5. *Washington Fish Consumption Advisories*

In addition to Ecology's assessments, the Washington Department of Health ("WDH") also issues fish consumption advisories to warn people about the health risks from consuming contaminated fish from Washington's waters. These advisories are not based on the NTR criteria. There are two state-wide fish advisories concerning mercury content in fish caught in all Washington waters for women who are or might become pregnant, nursing mothers, and young children: "Don't eat Northern Pikeminnow. Limit

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66 *Id.*

67 *Id.*

eating Largemouth and Smallmouth Bass to no more than 2 meals per month."[68] In addition, there are waterbody-specific advisories applicable to all fish consumers in the following waters:

> Yakima River for PCBs
> Lake Chelan for DDT
> Wenatchee River for PCBs
> Lower Columbia River for PCBs, DDT, dioxins/furans
> Middle Columbia River for mercury and PCBs (bluegill, yellow perch, crappie, walleye, carp, catfish, suckers and sturgeon)
> Upper Columbia River/Lake Roosevelt for mercury and PCBs
> Green Lake (King County) for PCBs
> Lake Washington for PCBs
> Lower Duwamish River for PCBs
> Okanogan River for DDT and PCBs
> Pend Oreille River for mercury
> Puget Sound for mercury and PCBs
> Spokane River for PCBs, PBDEs, and lead
> Walla Walla River for PCBs
> Lake Whatcom for mercury[69]

B. Lack of Protective Human Health Criteria Hampers Toxic Clean Up Efforts for Widespread Toxic Contamination in Washington's Waters

The lack of adequately protective human health criteria applicable to Washington's waters affects the ability of Ecology to use CWA regulatory mechanisms to achieve water quality protection goals given the widespread toxic pollution in its waters discussed above. As the Puget Sound Partnership recently observed,

> PCB levels in Puget Sound fish today are probably ten times lower than they were in the 1970s, but they have not changed appreciably in the past 20 years. Current PCB levels are high enough to trigger Department of Health consumption advisories for Chinook salmon and other species, and are probably still high enough to harm fish health. Further reduction of

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[68] Washington State Department of Health, *Statewide Mercury Advisories for Fish, Sport-Caught / Recreational Fish Advice,* http://www.doh.wa.gov/Communityand Environment/Food/Fish/MercuryAdvisories.aspx (last visited October 4, 2013).

[69] Washington Department of Health, *Fish Consumption Advisories*, http://www. doh.wa.gov/CommunityandEnvironment/Food/Fish/Advisories.aspx (last visited October 4, 2013).

> PCBs in the ecosystem will likely require a combination of activities, including cleaning up contaminated sediments, identifying and halting new sources of PCBs into the system, and waiting for existing PCBs in the system to degrade or become unavailable.[70]

Such efforts to analyze, clean up, and prevent further contamination by new sources of toxics, however, rely on using appropriately protective criteria in the state's regulatory programs.

Similarly, in contrast to the statewide and waterbody-specific fish consumption advisories for mercury-contaminated fish and Ecology's evaluations of fish tissue levels of toxics, Ecology's 1998 Section 303(d) list of impaired waters for mercury, which is based on data compared to the NTR toxic criteria, includes a mere 22 waterbody segments across the state. Unlike the advisories, the 303(d) list is the trigger for regulatory actions pursuant to the CWA and the state's nonpoint source authority. These 303(d) listings for mercury do not include the Pend Oreille and Spokane Rivers nor do they include the entirety of the Puget Sound, all three of which are specifically called out by the WDH as posing a threat to human health from mercury in fish tissue. Lake Chelan is not listed on Washington's 303(d) list for DDT despite its being the subject of a WDH fish consumption advisory. Similarly, a mere 4.7 stream miles are identified as being impaired for mercury in EPA's 2008 305(b) assessment for Washington,[71] yet WDH's fish consumption advisory applies to all waters in the state.

EPA's own recent Columbia River report points out that toxics reduction efforts rely primarily on the regulatory programs established by the CWA which rely, in turn, upon the water quality standards containing the human health criteria. For example, EPA

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70 Puget Sound Partnership, *supra* n. 50, at 143.

71 EPA, *supra* n. 34.

discusses the development of Total Maximum Daily Loads (TMDLs) pursuant to Section 303(d) of the Act, and the use of National Pollutant Discharge Elimination System (NPDES) permits pursuant to Section 402 of the Act to clean up toxic pollution. TMDLs are intended to establish limits on pollution for various sources in order to bring waterbodies into compliance with water quality standards.[72] EPA's report cites approvingly of Ecology's having developed TMDLs for toxics in seven rivers or creeks and its efforts to complete a TMDL for PCBs in the Spokane River.[73] EPA fails to point out that all of Ecology's existing and planned future TMDLs have been or will be developed for numeric criteria that are based on the outdated national default of 6.5 grams/day fish consumption, criteria EPA has disapproved in Oregon and Idaho, and will therefore fall far short of bringing waters into compliance with appropriate standards that protect the state's designated uses.

For example, the following Washington TMDLs for toxic pollutants are based on the NTR regulatory values: DDT and PCBs in Lake Chelan,[74] chlorinated pesticides and PCBs in the Walla Walla River,[75] DDT and PCBs in the Lower Okanogan River Basin,[76]

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[72] CWA § 303(d)(1), (2).

[73] EPA, *Columbia Toxics Report, supra* n. 41, at 31. The Spokane PCB TMDL has since been withdrawn.

[74] Ecology, *Lake Chelan DDT and PCBs in Fish Total Maximum Daily Load Study* 4 (June 2005, Revised December 2006) Publication No. 05-03-014 available at https://fortress.wa.gov/ecy/publications/publications/0503014.pdf (last visited Oct. 14, 2013).

[75] Ecology, *A Total Maximum Daily Load Evaluation for Chlorinated Pesticides and PCBs in the Walla Walla River* 11, 16 (October 2004), Publication No. 04-03-032 available at https://fortress.wa.gov/ecy/publications/publications/0403032.pdf (last visited Oct. 14, 2013).

[76] Ecology, *TMDL Technical Assessment of DDT and PCBs in the Lower Okanogan River Basin* 10-12 (July 2003) Publication No. 03-03-013 available at https://fortress.wa.gov/ecy/publications/publications/0303013.pdf (last visited Oct. 14, 2013).

chlorinated pesticides and PCBs in the Palouse River, [77] DDT in the Lower Mission Creek Basin,[78] pesticides and PCBs in the Yakima River,[79] and arsenic in the Similkameen River.[80] Wasteload and load allocations to point and nonpoint sources of these toxic contaminants, respectively, are established by these TMDLs at levels that meet the NTR criteria and, in so doing, fail to protect designated uses.

Likewise, NPDES permits are required to assure that dischargers do not cause or contribute to violations of water quality standards.[81] When EPA states in its Columbia River report that "all available regulatory tools such as the Clean Water Act and the Comprehensive Environmental Response, Compensation and Liability Act, [have] been employed to protect human health and the environment" in [the] heavily contaminated watershed [of the Coeur d'Alene Basin]," it is aware that EPA itself has not employed its own authority to update the human health criteria in Washington, and upstream in Idaho, that would ensure the very CWA regulatory tools on which it relies will be effective in protecting designated uses and meeting the goals of the statute. Given that Washington's waters are downstream of the Coeur d'Alene Basin, its water quality criteria are relevant

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[77] Ecology, *Palouse River Chlorinated Pesticide and PCB Total Maximum Daily Load* 23-24 (July 2007) Publication No. 07-03-018 available at https://fortress.wa.gov/ecy/publications/publications/0703018.pdf (last visited Oct. 14, 2013).

[78] Ecology, *DDT Contamination and Transport in the Lower Mission Creek Basin, Chelan County* 8 (October 2004), Publication No. 04-03-043 available at https://fortress.wa.gov/ecy/publications/publications/0403043.pdf (last visited Oct. 14, 2013).

[79] Ecology, *Yakima River Pesticides and PCBs Total Maximum Daily Load, Volume 1 Water Quality Study Findings* 9-11 (April 2010), Publication No. 10-03-018 available at https://fortress.wa.gov/ecy/publications/publications/1003018.pdf (last visited Oct. 14, 2013).

[80] Ecology, *A Total Maximum Daily Load Evaluation for Arsenic in the Similkameen River* (November 2002), Publication No. 02-03-044, available at https://fortress.wa.gov/ecy/publications/publications/0203044.pdf (last visited Oct. 14, 2013).

[81] CWA § 301(b)(1)(C); 40 C.F.R. §§ 122.44(d), 122.4(d).

as well to regulatory activities of upstream states,[82] namely Idaho where water quality criteria are similarly unprotective.[83]

In its report, EPA itself points out that updating human health criteria for toxics is relevant to reducing levels of toxics in the environment. It notes that "[f]ederal, state, and local agencies have multiple regulatory mechanisms available to reduce toxics. Such mechanisms include TMDLs, NPDES permits, *water quality standards*, contaminated site cleanup, and programs to control pesticide usage."[84] EPA specifically points to Oregon's successful completion of updated human health toxic criteria based on 175 grams/day of fish consumption in a statement that "Oregon is using human health criteria to limit toxics," noting that

> ODEQ's water quality standards play an important role in maintaining and restoring environmental quality. Human health criteria are used to limit the amount of toxic pollutants that enter Oregon's waterways and accumulate in the fish and shellfish consumed by Oregonians. The criteria also serve as the framework for wastewater permits, nonpoint source reduction activities, stormwater permits, and sediment cleanup efforts. The criteria help ensure that people may eat fish and shellfish from local waters without incurring unacceptable health risks. A final rule on the revised criteria is expected in October 2009.[85]

The EPA Columbia River report also points to the successful implementation of a TMDL developed by EPA in 1991 that dramatically reduced the levels of dioxin in resident fish of the Columbia River. [86] This Columbia River Basin TMDL was based on water quality standards for the protection of human health.[87] Notably, Washington did

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82 40 C.F.R. § 131.10(b).

83 *See infra* Section IX.

84 EPA, Columbia Toxics Report, *supra* n. 41, at 40 (emphasis added).

85 *Id.* at 30.

86 *Id*. at 9.

87 EPA, *Total Maximum Daily Loading (TMDL) to Limit Discharges of 2,3,7,8-TCDD (Dioxin) to the Columbia River Basin* 4-1, A-1 (Feb. 25, 1991) available at

not have numeric criteria for dioxin at that time, which predated the NTR, so EPA relied on the state's narrative toxic criterion. The TMDL noted that the "Superior Court of Washington for Thurston County recently found that the manner in which the State applied their (sic) water quality standards to the listing under §304(l) of three pulp and paper mills was invalid."[88] EPA went on to say in the TMDL that it did not believe this court decision invalidated its use of the numeric criteria it chose in the TMDL as an interpretation of Washington's narrative criterion "because all waste load allocations and permit limits must ensure compliance with applicable water quality standards of downstream states."[89] It went on to cite use of Oregon's numeric criteria as the solution. Without the downstream standards requirement, the absence of numeric criteria in Washington could have prevented the very pollutant reductions EPA now praises. Likewise, based on the court decision EPA cited in the TMDL, it is unclear whether state law might preclude the use of Washington's narrative criteria to address inadequacies with the otherwise applicable NTR numeric criteria.

EPA itself has concluded that the currently applicable NTR criteria are not protective of Washington's designated uses. *See* Section VIII.A of this Petition, *infra*.

IV. Washington's Water Quality Standards

Washington's water quality standards for toxic contaminants are comprised of designated uses, narrative and numeric aquatic life criteria, and antidegradation requirements adopted by the state and numeric human health criteria promulgated by EPA.

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https://fortress.wa.gov/ecy/publications/publications/0910058.pdf (last visited Oct. 14, 2013).

[88] *Id*. at A-2, n. 1.

[89] *Id*.

A. State-Adopted Water Quality Standards

Washington's designated uses relevant to human consumption of fish from freshwater water bodies in Washington are set out in the state's rules as "Miscellaneous uses," defined as "wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics,"[90] and "Recreational uses."[91] For marine waters, the use designations in Washington for which there are no criteria to adequately and fully protect fish consumption are "Shellfish harvesting,"[92] "Recreational uses,"[93] and "Miscellaneous uses."[94]

Washington has adopted criteria that apply to the state's freshwater uses for toxic, radioactive, and deleterious materials[95] that include the following narrative criterion applicable to fish consumption in Washington:

> Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health (see WAC 173-201A-240, toxic substances, and 173-201A-250, radioactive substances).[96]

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[90] WAC 173-201A-200(4); *see also* WAC 173-201A-600(1)("All surface waters of the state not named in Table 602 are to be protected for the designated uses of: Salmonid spawning rearing, and migration; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values."), WAC 173-201A-602(1), and Table 602 ("Use designations for fresh waters by water resource inventory area (WRIA)").

[91] WAC 173-201A-200(2).

[92] WAC 173-201A-210(2); *see also* WAC 173-201A-610 ("All marine surface waters have been assigned specific uses for protection under Table 612"), WAC 173-201A-612, Table 612 ("Use designations for marine waters").

[93] WAC 173-201A-210(3).

[94] WAC 173-201A-210(4).

[95] WAC 173-201A-200 (4)(a).

[96] WAC 173-201A-260 (2)(a). The internal references also include narrative toxic criteria at WAC 173-201A-240(1) and (2) that apply to both human health and aquatic life.

The internally-referenced standards, in turn, contain the following two provisions: (1) "Human health-based water quality criteria used by the state are contained in 40 CFR 131.36 (known as the National Toxics Rule)"[97] and (2) "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."[98]

Washington's designated uses for support of freshwater aquatic life are designated "based on the presence of, or the intent to provide protection for, the key uses identified[.] It is required that all indigenous fish and nonfish aquatic species be protected in waters of the state in addition to the key species[.]"[99] Washington's designated uses of marine "indigenous and nonfish aquatic species" are protected by categories that establish levels of quality to support the migration, rearing, and spawning of salmonids, clams, oysters, mussels, crustaeans and other shellfish (crabs, shrimp, crayfish, scallops etc.).[100]

Washington's standards establish criteria that apply to the protection of aquatic life designated uses from toxic contaminants[101] include the above-cited narrative criteria and numeric criteria set out in Table 240(3).[102] With the exception of a very few aquatic

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97 WAC 173-201A-240(5).

98 WAC 173-201A-240(6).

99 WAC 173-201A-200(1). The key species are native char, redband trout, indigenous water species, and salmonids. WAC 173-201A-200(1)(a)(i)-(vi).

100 WAC-173-201A-210(1).

101 WAC 173-201A-200(1)(b)(i); WAC 173-201A-210(1)(b)(i).

102 WAC 173-201A-240(3). Although WAC 173-201A-240(4) states that "USEPA Quality Criteria for Water, 1986, as revised, shall be used in the use and interpretation of the values listed in subsection (3) of this section," WAC 173-201A-240(3) explicitly states that "[t]he department shall formally adopt any appropriate revised criteria as part of this chapter in accordance with the provisions established in chapter 34.05 RCW, the Administrative Procedure Act".

life criteria – ammonia,[103] chronic marine copper,[104] and chronic marine cyanide[105] – Washington's aquatic life criteria were adopted and submitted to EPA on November 25, 1992, approved by EPA on March 18, 1993, and have never been revised in the intervening 20 plus years.

B. EPA's National Toxics Rule for Washington

1. *The 1987 Clean Water Act Amendments*

The stated objective of the 1972 Clean Water Act "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[106] Consistent with that goal, the Act states "it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited."[107] Section 303(c) of the 1972 Act establishes a program for water quality standards and, as set out above, contains specific requirements with regard to standards for the protection of designated uses from toxic pollutants.

During the 1970s, the water quality standards program was a relatively low priority for EPA in comparison with other approaches established by the CWA.[108] By the early 1980s, however, it became clear to Congress that effective protection and enhancement of the nation's waters must include greater focus on water quality-based

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[103] Approved by EPA on February 6, 1998, revised in June 2003 and again in November 2006, and approved by EPA on February 11, 2008.

[104] Approved by EPA on February 6, 1998. Removed from the NTR on July 9, 2007.

[105] A site-specific criterion for Puget Sound was approved by EPA on February 6, 1998 and a marine chronic cyanide criterion for waters outside Puget Sound was approved by EPA on May 23, 2007. Washington was removed from all remaining aquatic life criteria in the NTR on July 9, 2007.

[106] CWA § 101(a).

[107] CWA § 101(a)(3).

[108] EPA, *Water Quality Standards History*, available at http://water.epa.gov/scitech/swguidance/standards/history.cfm, last updated April 3, 2012 (last visited Oct. 14, 2013).

pollution control.[109] One issue that particularly concerned Congress was states' heavy reliance on narrative criteria in their control of toxics (e.g. "no toxics in toxic amounts").[110] To rectify this problem, Congress adopted amendments to Section 303(c)(2)(B). The pertinent amendments require states' reviewing their water quality standards to "adopt criteria for all toxic pollutants [for which EPA has recommended 304(a) numeric criteria] the discharge of which in the affected waters could reasonably be expected to interfere with those designated uses adopted by the State."[111] If available as recommended 304(a) criteria from EPA, the criteria adopted by the states must be "specific numerical criteria for such toxic pollutants" or, absent numerical criteria, states "shall adopt criteria based on biological monitoring or assessment methods consistent with information published pursuant to section 304(a)(8)" of the Act.[112]

As EPA itself noted in promulgating the NTR, the legislative history underscores Congressional concern about states' failure to address toxics and EPA's failure to use its oversight role to push states to more swift action. EPA cites the statements of Senator Robert T. Stafford, first chairman and then ranking minority member of the authorizing committee, who noted that

> An important problem in this regard is that few States have numeric ambient criteria for toxic pollutants. The lack of ambient criteria [for toxic pollutants] makes it impossible to calculate additional discharge limitations for toxics[.] * * * It is vitally important that the water quality standards program operate in such a way that it supports the objectives of the Clean Water Act to restore and maintain the integrity of the Nation's Waters.[113]

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109 *Id.*
110 *Id.*
111 CWA § 303(c)(2)(B).
112 *Id.*
113 U.S. Government Printing Office, *A Legislative History of the Water Quality Act of 1987* (Pub. L. 100-4), Senate Print 100-144 at 1324 (Nov. 1988).

In EPA's own words, "[t]his Congressional impatience with the pace of State and EPA progress and an appreciation that the lack of State standards for toxics undermined the effectiveness of the entire CWA-based scheme, resulted in the 1987 adoption of stringent new water quality standard provisions in the Water Quality Act amendments."[114] Put another way, "for the first time in the history of the Clean Water Act, Congress took the unusual action of explicitly mandating that States adopt numeric criteria for specific toxic pollutants."[115]

2. *EPA's Promulgation of the National Toxics Rule*

While most states moved to adopt numeric criteria for toxic pollutants after the 1987 amendments and associated EPA guidance, others did not. In order to address these recalcitrant states and to meet the intent of the CWA, EPA promulgated numeric water quality criteria for those states that had failed to timely adopt updated numeric water quality criteria for toxic pollutants.[116] The purpose of this National Toxics Rule "was to strengthen State water quality management programs by increasing the level of protection afforded to aquatic life and human health through the adoption of all available criteria for toxic pollutants present or likely to be present in State waters."[117] Specific benefits of establishing toxic criteria stated in the final rule include "reducing the potential health risks to persons eating fish contaminated with toxic pollutants" and "reduction in cancer risk."[118] At the time of its promulgation, the NTR applied to 14 states[119] and was

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114 *NTR Final Rule Notice*, *supra* n. 2.
115 *Id*.
116 *Id*. at 60848-60923.
117 EPA, *supra* n. 108.
118 *NTR Final Rule Notice*, 57 Fed. Reg. 60852, 60909 (Dec. 22, 1992).
119 "States" in this context includes Puerto Rico and the District of Columbia.

designed to "bring all States into compliance with the requirements of section 303(c)(2)(B) of the Clean Water Act."[120] At the time, EPA considered it had given these 14 states more than a full triennium – namely fiscal year 1988 to 1990 – to comply with the new statutory requirement.[121]

EPA's preamble to the NTR sets out the policy and legal basis upon which EPA now must act to make a determination that Washington's toxic criteria for the protection of human health are inadequate. As EPA stated then,

> Without clearly established water quality goals, the effectiveness of many of EPA's water programs is jeopardized. Permitting, enforcement, coastal water quality improvement, fish tissue quality protection, certain nonpoint source controls, drinking water quality protection, and ecological protection all depend to a significant extent on complete and adequate water quality standards. Numeric criteria for toxics are essential to the process of controlling toxics because they allow States and EPA to evaluate the adequacy of existing and potential control measures to protect aquatic ecosystems and human health. Formally adopted standards are the legal basis for including water quality-based effluent limitations in NPDES permits to control toxic pollutant discharges. The critical importance of controlling toxic pollutants has been recognized by Congress and is reflected, in part, by the addition of section 303(c)(2)(B) to the Act. Congressional impatience with the pace of State toxics control programs is well documented in the legislative history of the 1987 CWA amendments. In order to protect human health, aquatic ecosystems, and successfully implement toxics controls, EPA believes that all actions which are available to the Agency must be taken to ensure that all necessary numeric criteria for priority toxic pollutants are established in a timely manner.[122]

Stating further that EPA's response in promulgating the NTR was to "rectify a longstanding program deficiency,"[123] and noting that states had had five years in which to

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120 *NTR Final Rule Notice*, 57 Fed. Reg. 60852, 60848 (Dec. 22, 1992).
121 *Id.* at 60854.
122 *Id*. at 60849.
123 *Id*. at 60854.

come into compliance,[124] EPA concluded that "it is EPA's responsibility to exercise its CWA authorities to move forward the toxic control program in concert with the statutory scheme" when states fail to "establish fully acceptable criteria for toxic pollutants."[125] It noted too that the NTR was EPA's response to states' having failed to act in a timely manner and that the "addition of section 303(c)(2)(B) to the Clean Water Act was a clear and unequivocal signal from Congress that it was dissatisfied with the slow pace at which States were adopting numeric criteria for toxic pollutants."[126] EPA highlighted the role of standards in protecting human health by observing that "[t]he intent of the Federal promulgation section of the Act is to accelerate human health and ecological protection by establishing water quality standards as a basis for pollution control programs."[127]

In promulgating the NTR, EPA relied on both Sections 303(c)(4)(A) and (B) of the Act. EPA explained its rationale for acting to promulgate for certain states under 303(c)(4)(A) as based on its "[n]ot having received an appropriate correction [from the States] within the statutory time frame, EPA is today promulgating the needed criteria."[128] EPA noted, however, that

> Section 303(c)(4)(B) is the basis for EPA's requirements for most States. For these States, the Administrator has determined that promulgating criteria is necessary to bring the States into compliance with the requirements of the CWA. In these cases, EPA is promulgating, at a minimum, criteria for all priority toxic pollutants not addressed by approved State criteria. EPA is also promulgating criteria for priority toxic pollutants where any previously-approved State criteria do not reflect current science contained in revised criteria documents and other guidance sufficient to fully protect all designated uses or human exposure

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124 *Id*. at 60894.
125 *Id*. at 60849.
126 *Id*. at 60895.
127 *Id*.
128 *Id*. at 60857.

> pathways, or where such previously- approved State criteria are not applicable to all appropriate designated uses.[129]

In the NTR preamble, EPA correctly points out that use of 304(c)(4)(B) requires an Administrator's determination under that section. In the NTR, that Administrator's determination was based on its finding that

> a State's failure to meet this fundamental 303(c)(2)(B) requirement of adopting appropriate standards constitutes a failure "to meet the requirements of the Act." That failure to act can be a basis for the Administrator's determination under section 303(c)(4)(B) that new or revised criteria are necessary to ensure designated uses are adequately protected. Here, this determination is buttressed by the existence of evidence of the discharge or presence of priority toxic pollutants in a State's waters for which the State has not adopted numeric water quality criteria. The Agency has compiled an impressive volume of information in the record for this rulemaking on the discharge or presence of toxic pollutants in State waters. This data supports the Administrator's determination pursuant to section 303(c)(4)(B).[130]

EPA noted its ability to use a sweeping basis for the Administrator's determination rested on Congressional intent:

> In normal circumstances, it might be argued that to exercise section 303(c)(4)(B) the Administrator might have the burden of marshalling conclusive evidence of "necessity" for Federally promulgated water quality standards. However, in adopting section 303(c)(2)(B), Congress made clear that the "normal" procedure had become inadequate. The specificity and deadline in section 303(c)(2)(B) were layered on top of a statutory scheme already designed to achieve the adoption of toxic water quality standards. Congressional action to adopt a partially redundant provision was driven by their impatience with the lack of State progress. The new provision was essentially a Congressional "determination" of the necessity for new or revised comprehensive toxic water quality standards by States. In deference to the principle of State primacy, Congress, by linking section 303(c)(2)(B) to the section 303(c)(1) three-year review period, gave States a last chance to correct this deficiency on their own. However, this Congressional indulgence does not alter the fact that section 303(c)(2)(B) changed the nature of the CWA State/EPA water quality standard relationship. The new provision and its legislative background

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129 *Id.*

130 *Id*. at 60857-58.

> indicate that the Administrator's determination to invoke his section 303(c)(4)(B) authority in this circumstance can be met by a generic finding of inaction on the part of a State and without the need to develop data for individual stream segments. Otherwise, the Agency could face a heavy data gathering burden of justifying the need for each Federal criterion and the process could stretch for years and never be realized. To interpret the combination of subsections (c)(2)(B) and (c)(4) as an effective bar to prompt achievement of statutory objectives would be a perverse conclusion and render section 303(c)(2)(B) essentially meaningless.[131]

EPA continued, in the NTR preamble, to note that "[f]ederal promulgation of State water quality standards should be a course of last resort. . . . Yet, when it is necessary to exercise this authority, as the compelling evidence suggests in this case, there should be no undue impediments to its use."[132] Part of the compelling evidence cited by EPA were the deadlines and emphasis on prompt action in CWA Section 303(c)(4). Of significant note, EPA concluded that "to fulfill its statutory obligation requires that EPA's deference and flexibility cannot be unlimited."[133]

In the NTR, EPA pointed to precisely the types of barriers that have prevented Washington's timely adoption of criteria as required by the statute: "recent [State] adoption efforts have often been stymied by a variety of factors including limited resources, competing environmental priorities, and difficult scientific, policy and legal challenges."[134] EPA noted, this regard, the availability of most 304(a) recommended criteria for 12 years, the contrasting state recalcitrance in adopting criteria, and the need for an "active Federal role" to address the problem. The agency concluded that "[t]his

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131 *Id*. at 60858. EPA also noted that a traditional allowance for flexibility accorded to the states to carry out their obligations under the CWA was based on "an assumption of reasoned and timely State action, not an abdication of State responsibility by failure to act." *Id*.

132 *Id.*

133 *Id*.

134 *Id*. at 60859.

rate of toxics criteria adoption is contrary to the CWA requirements and is a reflection of the difficulties faced by States. In such circumstances, it is EPA's responsibility to exercise its CWA authorities to move forward the toxic control program in concert with the statutory scheme."[135]

EPA made sure to clarify that the neither state action to date nor the NTR would permanently resolve states' need to comply with CWA 303(c)(2)(B): "In no sense should States or the regulated community assume that the task of addressing pollution from toxics is completed by what the States have adopted or EPA is promulgating in the way of criteria for toxic pollutants."[136] EPA also specifically contemplated future need for federal promulgation:

> In cases where such State rules are remanded or otherwise set aside, or intentionally withdrawn by the State for any reason, and the State does not pursue in good faith correcting such defects in a timely manner, it is EPA's intention to initiate appropriate rulemaking to put in place appropriate criteria for priority toxic pollutants to bring State water quality standards into compliance with the Clean Water Act.[137]

Moreover, EPA noted a "strong possibility promulgation action would have to be commenced again by EPA in the near future," if were to rely on states' short-term emergency rulemaking to exempt them from the NTR.[138] While it chose to avoid such promulgation by not relying on temporary actions by states, EPA also pointed out the purely housekeeping aspect of the NTR:

> Although the State and pollutant coverage of this final rule is large, the issues involved are neither new nor numerous. The primary focus of this rule is the *narrow issue of whether a State has adopted sufficient water*

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135 *Id*.
136 *Id*. at 60873.
137 *Id*. at 60856.
138 *Id*. at 60874.

> *quality criteria for toxic pollutants in State standards as necessary to support water quality-based control programs*.[139]

EPA's NTR provides for removal of states from the federal rule only upon their compliance with 303(c)(2)(B).[140] EPA's subsequent rulemaking to accomplish this removal requires notice and comment only when the state-adopted criteria are less stringent than those in the NTR, unless the state's less stringent criteria are based on a cancer risk of 10^{-5} for the general population.[141] The NTR, however, makes no provisions for updating the criteria established for the states even as EPA issues increasingly more stringent and protective recommended 304(a) criteria.

The NTR adopted a risk level of 10^{-6} for Washington based on the state's formal adoption of that risk level.[142] Washington went considerably further than adopting that risk level for its own citizens, urging EPA to apply it to all states, as described in the NTR preamble:

> 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, "[t]he 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."[143]

EPA noted that the NTR sought not only to "promulgate the toxics criteria necessary to comply with section 303(c)(2)(B)" but also "for such criteria to achieve their intended purpose the implementation scheme must be such that the final results protect the public health and welfare." Specifically, EPA noted that one of the factors in EPA's

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139 *Id.* at 60895 (emphasis added).
140 *Id*. at 80860.
141 *Id.*
142 *Id*. at 60868.
143 *Id*.

assessment of criteria for carcinogens is fish consumption rates, and that "[w]hen any one of these factors is changed, the others must also be evaluated so that, on balance, resulting criteria are adequately protective." In adopting the NTR, EPA anticipated that it would be making changes to its 1980 methodology for calculating criteria as well as its 304(a) recommended criteria:

> As indicated in this preamble, we are currently re-examining our basic criteria development methodology, which is a normal course of action for the Agency. We anticipate some changes will be made and we assume some changes in the criteria will be made over the years. This, however, is no reason to suspend action now.[144]

Indeed, the human health criteria in the NTR are based on EPA's methodology published in 1980 – over 32 years ago.[145] This methodology "assumes the consumption of two liters of water and the ingestion of 6.5 grams of fish per day, and the bioconcentration potential of a contaminant in fish tissue [that] may be a significant factor in the human health criteria value."[146] Since then, EPA has adopted a new updated methodology for development of human health criteria, yet the NTR remains mired in the science of the past.

3. *Two Decades Later, Washington State Remains Under the NTR*

Despite having acted in the 1992 promulgation of the NTR to ensure the intent of Congress was fulfilled, EPA then proceeded to ignore that intent. Presumably because "EPA prefers that States maintain primacy, revise their own standards, and achieve full compliance," it encourages states to adopt their own "criteria for priority toxic pollutants

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144 *Id*. at 60875.
145 *Id*. at 60883.
146 *Id*. at 60884.

necessary to comply with section 303(c)(2)(B),"[147] but never goes beyond encouragement. EPA has never again updated states' toxic criteria in the absence of their own action, including updating the NTR, with the exception of the California Toxics Rule.[148] Instead, EPA has focused solely on withdrawing states from the federal promulgation. When a state fully complies with the NTR by adopting "standards no less stringent than the Federal rule," EPA conducts a rulemaking to remove the compliant state from the NTR.[149] EPA has not added a single state to the NTR since it was promulgated in 1992. EPA has not updated the NTR default fish consumption levels since 2000 when it changed the national default fish consumption rate for states. And EPA has made no changes to NTR human health criteria, save one, since 1992.[150] As a result, EPA has made no revisions to the NTR that update Washington's human health and aquatic life criteria as required by CWA Section 303(c)(2)(B).

V. EPA's Current Methodology for Establishing Water Quality Criteria for the Protection of Human Health

The requirements of section 303(c)(2)(B) with regard to states' being required to adopt numeric criteria are tied to EPA's obligations under section 304(a)(1). Under Section 304(a)(1), EPA is required to develop, publish, and revise from time to time,

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147 *Id*. at 60860.

148 EPA, *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule* 65 Fed. Reg. 31682-31719 (May 18, 2000).

149 *NTR Final Rule Notice*, 57 Fed. Reg. 60860.

150 EPA, *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance—Revision of Polychlorinated Biphenyls (PCBs) Criteria,* 64 Fed. Reg. 61182 (Sept. 1999) (EPA updated the NTR PCB criteria for human health based on new cancer potency factor). EPA also amended the NTR to promulgate dissolved, rather than total recoverable, aquatic life metals criteria. EPA, *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance—Revision of Metals Criteria*, 60 Fed. Reg. 22229 (May 4, 1995).

"criteria for water quality accurately reflecting the latest scientific knowledge on the kind and extent of all identifiable effects on health and welfare."[151] CWA 304(a) recommended criteria are based upon scientific data concerning the relationship between pollutants and their effect on human health and the environment and do not consider the technological feasibility or economic impact of meeting the criteria.[152] These recommended criteria are not applicable for regulatory matters under the CWA but, rather, are recommended for states to adopt. Until a state adopts the recommended criteria, and they are approved by EPA pursuant to section 303(c)(3), the 304(a) criteria have no regulatory effect. Moreover, states' adoption of the EPA recommended criteria may not be adequate to meet the requirements of the CWA and EPA regulations if the recommended criteria are not adequate to protect the state's designated uses. For example, if a state's citizens consume higher levels of fish than the national average , EPA might reject a state's decision to use the national default fish consumption values, an action it has taken in Oregon and Idaho.

A. EPA 304(a) Recommended Criteria

It is EPA's policy in establishing its recommended criteria to set "a single [Ambient Water Quality Criteria] AWQC for both drinking water and fish/shellfish consumption, and a separate AWQC based on ingestion of fish/shellfish alone."[153] Where the designated uses of a body of water "include supporting fishable uses under Section 101(a) of the CWA and, thus, fish or shellfish for human consumption, but not as a drinking water supply source," separate criteria based solely on ingestion of fish are

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151 CWA § 304(a)(1).
152 EPA, *2000 Methodology*, *supra* n. 5, at 1-1.
153 *Id.* at 4-2.

used.[154] To the extent that states may choose to use different scientifically-defensible variables in lieu of those chosen by EPA, they may do so.

In 2000, EPA published its *2000 Methodology*, which updated its approach to developing criteria to protect human health. The *2000 Methodology* was designed to guide EPA in development of new recommended 304(a) criteria as well as to provide states with guidance when deriving their own criteria. The *2000 Methodology* also defined default factors for use in calculating national recommended criteria and in evaluating state water quality standards.[155] Although states are free to employ "different, scientifically defensible, methodologies to develop human health criteria," in meeting the requirements of 303(c)(2)(B), states must use either: "(1) 304(a) criteria; (2) 304(a) criteria modified to reflect site-specific conditions; or, (3) other scientifically defensible methods" where EPA has developed recommended 304(a) criteria.[156] EPA revised all of its 304(a) human health criteria based on the *2000 Methodology* using the new default fish consumption rate for the general population of 17.5 grams/day.[157]

B. State Adoption of Human Health Criteria; Use of the Four-Preference Hierarchy for Fish Consumption Rates

In determining a scientifically defensible fish consumption value for establishing ambient water quality criteria, EPA has set out a four-preference hierarchy for the source of ingestion data that states can and should use. The preferred source of information comes from use of local data.[158] This would include data gathered from fish consumption surveys of local watersheds within the state's jurisdiction and would, as a result, be the

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154 *Id*.
155 *Id*.
156 *Id*. at 1-4.
157 *See infra*, Section VII.
158 EPA, *2000 Methodology*, *supra* n. 5, at 4-25.

most representative of the populations to be protected by those particular criteria.[159] If local data are not available, the second most preferred source of a fish consumption level are those taken from similar geographic or population groups.[160] The third most preferred source of a fish consumption level are data from national consumption surveys.[161] The fourth, and least favorable, source of a consumption level is use of EPA's own national default rates.[162]

EPA's currently recommended default rate is based on data collected between 1994 and 1996 in a national Continuing Survey of Food Intakes by Individuals ("CSFII"). EPA recognizes that there is some difficulty in creating default recommendations due to "data gaps and uncertainties associated with the analysis of the 1994-96 CSFII survey."[163] Despite the difficulty in calculating an accurate and adequate default rate however, EPA settled, in its *2000 Methodology*, on default national rates it "believes are representative of fish intake for different population groups: 17.5 grams/day for the general adult population and sport fishers, and 142.4 grams/day for subsistence fishers."[164] These rates are notably higher than the NTR rate of 6.5 grams/day that underlies the criteria currently applicable to Washington, a rate undifferentiated by subpopulations.

EPA has already determined that on the basis of its *2000 Methodology*, Oregon's and Idaho's use of 17.5 grams/day of fish consumption are not protective of designated uses, are not based on a sound scientific rationale, and fail to take into account data the

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159 *Id*.
160 *Id*. at 4-26.
161 *Id*.
162 *Id*.
163 *Id.*
164 *Id*.

states should use. Therefore, EPA cannot logically make a contrary finding with regard to Washington's NTR criteria which are based on an even lower fish consumption rate than EPA has already disapproved, and where the data similarly apply. EPA's failure to revise the NTR criteria for Washington, criteria which were only intended to protect the average consumer and were derived from the out-of-date and inaccurate value of 6.5 grams/day of fish consumption, places the public health and welfare in jeopardy and violates the CWA.

VI. Washington Fish Consumption and Establishment of Fish Consumption Rates in Washington

Twenty years after EPA's promulgation of the NTR, the State of Washington continues to rely on outdated criteria, calculated using a fish consumption rate of 6.5 grams/day. Ecology has acknowledged the fish consumption rates currently used by the state for regulatory purposes "are not consistent with data about fish consumption by Washington populations for which fish consumption survey information is available."[165] Even so, for no particular reason and for political reasons,[166] Washington has not updated its toxic criteria as required by CWA Section 303(c)(2)(B) in any of its triennial reviews of water quality standards completed in November 1997, June 2003, August 2003, November 2006, and June 2011. EPA has not required Washington to comply with the

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165 Ecology, *Final FCR Report*, *supra* n. 65, at xiii.

166 *See, e.g.*, Robert McClure, *Business Interests Trump Health Concerns in Fish Consumption Fight,* Investigate West, http://www.invw.org/article/business-interests-trump-1344 (March 30, 2013) (last visited Oct. 14, 2013); Robert McClure & Olivia Henry, *How Boeing, allies torpedoed state's rules on toxic fish,* Investigate West, http://www.invw.org/article/how-boeing-allies-torpedo-1353 (April 23, 2013) (last visited Oct. 14, 2013); Jason Alcorn, *The Emails and Reports behind Washington's Fish Consumption Debate*, Investigate West, http://www.invw. org/article/the-emails-and-reports-be-1346 (March 30, 2013) (last visited Oct. 14, 2013); Olivia Henry, *Timeline: Fish Consumption Rate,* Investigate West, http://www.invw.org/article/ timeline-fish-consumption-1351 (April 23, 2013) (last visited Oct. 14, 2013).

requirements of the CWA Section 303(c)(2)(B) during each of these triennial reviews nor has it disapproved the results because Washington failed to comply with the statute. And EPA apparently believes it has not already made a determination that new or revised standards are necessary to meet the requirements of the CWA pursuant to 303(c)(4)(B) and promulgated criteria for the state.[167]

A. Fish Consumption in Washington

The State of Washington is home to 4,000 streams and rivers spread over 50,000 miles, over 7,000 lakes, over 200 reservoirs, and over 2,500 miles of coastal and estuarine shoreline.[168] Residing in those waters are "more than 50 species of edible freshwater fish" that support thriving recreational, commercial, and subsistence fishing.[169] In many areas, freshwater fishing is open year-round.[170] In 2006, the total commercial catch from non-treaty fisheries in the state amounted to over 109 million pounds, about 10 percent of which were salmon, 54 percent groundfish, and 25 percent shellfish.[171] In the same year, the number of finfish caught recreationally in Washington's inland waters totaled 162,498 and the total number of fish caught by recreational fishes was 843,636.[172] Shellfish harvested recreationally totaled 113,466 pounds that year.[173] Not surprisingly, Ecology has concluded that a significant amount of the fish consumed by Washington residents comes from local sources:

- About 68 percent of <u>total fish</u> consumed by the Squaxin Island tribal population is locally harvested. The percentage of total fish

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167 *See supra*, n. 1 (discussing *Puget Soundkeeper v. EPA*).
168 Ecology, *Final FCR Report, supra* n. 65, at 7-8.
169 *Id.* at 8.
170 *Id*.
171 *Id*. at 9.
172 *Id.* at 10 tbl. 4.
173 *Id*. at 11 tbl. 5.

> consumed that is locally harvested is somewhat higher for the other tribal populations surveyed: approximately 88 percent for the Columbia River Tribes, 72 to 88 percent for the Tulalip Tribes, and 81 to 96 percent for the Suquamish tribe.
>
> * * *
>
> ● About 62 percent of shellfish consumed by Squaxin Island tribal populations are locally harvested. The percentage of shellfish that is locally harvested is somewhat higher for the Suquamish Tribe (81 percent), and highest for the Tulalip Tribes (98 percent or higher).[174]

Of a total state population of less than 6.72 million,[175] Ecology has estimated Washington's fish consumers account for between 2.9 and 3.8 million adults and approximately 290,000 children between the ages of 0 and 18 years old. Ecology uses EPA's definition of "high fish consumers" as persons who consume fish at or above the 90th national per capita percentile fish consumption rate.[176] For adults, this means consuming at least 250 grams (8.8 ounces) of fish per day, and for children aged 18 and younger consuming at least 190 grams/day (6.7 ounces).[177] Applying these statistics and EPA's national estimation of fish consumers to Washington, Ecology determined a range of 144,000 to 381,000 high fish-consuming adults and approximately 29,000 high fish-consuming children live in Washington.[178] Based on population projections, these numbers could rise by 27 percent for adults and 83 percent for children over the next 20 years.[179]

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174 *Id.* at xvii (emphasis in original).
175 *Id.* at 11.
176 *Id.* at 16.
177 *Id.* at 16-18.
178 *Id.*
179 *Id.*

B. Fish Consumption Studies of Washington Populations

In January 2013, Ecology's final report on fish consumption rates reviewed national, regional, and local studies pertaining to Washington levels of fish consumption including specifically:

- General population surveys conducted at the national level.
- Dietary surveys of Washington Native American populations.
- A dietary survey of Asian and Pacific Islander populations in King County.
- Washington water body specific evaluations, assessments, or health advisories issued by DOH.
- Technical publications, assessments, and/or evaluations of fish consumption specific to the Pacific Northwest
- Various evaluations or assessments used to make regulatory decisions. For example, the baseline human health risk assessment performed for the Lower Duwamish Water way, which refers to the EPA Region 10 Framework and Kissinger re-evaluation (Windward Environmental, 2007; U.S. EPA, 2007b; Kissinger, 2005).[180]

In the report, Ecology concludes there are three tribal-specific fish consumption surveys and one Asian and Pacific Islander survey, all four of which are technically defensible.[181]

The first of these technically defensible studies was conducted by CRITFC in 1991-1992, a study published in 1994, 18 years ago.[182] EPA Region 10 first worked with CRITFC to evaluate fish consumption rates by tribal members, concluding

> The rates of tribal members' consumption across gender, age groups, persons who live on- vs. off-reservation, fish consumers only, seasons, nursing mothers, fishers, and non-fishers range from 6 to 11 times higher than the national estimate used by USEPA.[183]

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180 *Id*. at 39 (footnotes omitted).

181 *Id*. at 46-47.

182 Columbia River Intertribal Fish Commission, *A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin*, Technical Report 94-3 (Oct., 1994) available at http://www.deq.idaho.gov/media/895853-fish-consumption-survey-1994.pdf (last visited Aug. 23, 2013).

183 *Id*. at 59.

In the second phase of the evaluation, EPA and CRITFC conducted a fish tissue concentration survey and risk assessment.[184] In comparing total hazard indices estimated for adults consuming sturgeon from the Columbia River, EPA concluded that as compared to an average consumer in the general population, a high fish consumer in the general population had a 19-fold hazard from consuming fish, an average tribal consumer a 9-fold increase, and a high tribal consumer a 50-fold hazard.[185] Risks to children were even greater with, as compared to an average child consumer in the general population, a high fish child consumer in the general public having a 28-fold increase in hazard, an average child tribal consumer an 18-fold increase, and high fish child tribal consumer an 115-fold increase in hazard.[186]

As reported by Ecology, the mean fish consumption by adult Columbia River tribal members living on or near the Yakama, Warm Springs, Umatilla, or Nez Perce Reservations who ate fish was 63.2 grams/day. The mean fish consumption rate for all tribal adults, including non-consumers, was 58.7 grams/day. The 99th percentile fish consumption rates for adults and children who consumed fish were 389 grams/day and 162 grams/day, respectively.[187] A later study found that 50 percent of women, 80 percent of tribal elders, and at least 40 percent of children consume non-fillet fish parts containing higher lipid content than general consumers.[188] As reported by Ecology, the CRITFC survey results are as follows:[189]

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184 EPA, *Columbia Contaminant Survey*, *supra* n. 12.
185 *Id*. at 6-92, tbl. 6-2.
186 *Id*. at 6-93, tbl. 6-3.
187 Ecology, *Final FCR Report, supra* n. 65, at 48.
188 *Id* at 53.
189 *Id.* at 48 tbl. 21.

Table 21. CRITFC Adult Fish Consumption Rates by Species Group and Source, Consumers Only

Population Tribal	Species Group	Harvest Source of Fish	Descriptive Statistics (g/day)				
			50th Percentile	Mean	75th Percentile	90th Percentile	95th Percentile
The 4 Tribes Affiliated With The Columbia River Inter-Tribal Fish Commission	All finfish	all	40.5	63.2	64.8	130.0	194.0
	Non-anadromous	all	20.9	32.6	33.4	67.0	99.9
	Anadromous	all	19.6	30.6	31.4	63.1	94.1
	All finfish	Columbia River Basin	35.6	55.6	57.0	114	171
	Non-anadromous	Columbia River Basin	18.4	28.6	29.4	58.9	87.9
	Anadromous	Columbia River Basin	17.3	27.0	27.7	55.5	82.8

See Polissar et al., 2012, Table E-1.

Two years after the CRITFC study was completed, a survey was conducted of the Tulalip and Squaxin Island Tribes in the Puget Sound, published in 1994, 18 years ago.[190] This survey concluded that

> Age-adjusted median fish consumption rates for the Tulalip Tribes were 53 g/day for males and 34 g/day for females. Age adjusted median fish consumption rates for the Squaxin Island Tribe were 66 g/day for males and 25 g/day for females. The mean and median consumption rate for children, 5 years and younger for both tribes combined, were 0.53 and 0.17 g/kg bw/day, respectively.[191]

Fish fillets with skin were consumed by up to 40 percent of the respondents. As reported by Ecology, the results of the Tulalip Tribe survey are as follows:[192]

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190 *Id*.

191 *Id* at 54.

192 *Id*. at 55 tbl. 23; *see also* KellyToy, Nayak Polissar, Shiquan Liao & Gillian Mittelstaedt, *A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region* (Oct., 1996) available at http://www.deq.state.or.us/wq/standards/docs/toxics/tulalipsquaxin1996.pdf (last visited Aug. 23, 2013).

Table 23. Tulalip Tribal Adult Fish Consumption Rates by Species Group and Source

Population Tribal	Species Group	Harvest Source of Fish	Descriptive Statistics (g/day)				
			50th Percentile	Mean	75th Percentile	90th Percentile	95th Percentile
Tulalip	All Fish	All Sources	44.5	82.2	94.2	193	268
	Finfish	All Sources	22.3	44.1	49.1	110	204
	Shellfish	All Sources	15.4	42.6	40.1	113	141
	Non-anadromous	All Sources	20.1	45.9	52.4	118	151
	Anadromous	All Sources	16.8	38.1	43.3	92.1	191
	All	Puget Sound	29.9	59.5	75.0	139	237
	Finfish	Puget Sound	13.0	31.9	33.1	78.4	146
	Shellfish	Puget Sound	14.2	36.9	40.1	111	148
	Non-anadromous	Puget Sound	14.8	35.5	38.8	109	145
	Anadromous	Puget Sound	11.8	30.4	32.4	66.0	148

See Polissar et al., 2012, Table E-1.

As reported by Ecology, the results of the Squaxin Island Tribe survey are as follows:[193]

Table 24. Squaxin Island Tribal Adult Fish Consumption Rates by Species Group and Source

Population Tribal	Species Group	Harvest Source of Fish	Descriptive Statistics (g/day)				
			50th Percentile	Mean	75th Percentile	90th Percentile	95th Percentile
Squaxin Island	All fish	All	44.5	83.7	94.4	206	280
	Finfish	All	31.4	65.5	82.3	150	208
	Shellfish	All	10.3	23.1	23.9	54.0	83.6
	Non-anadromous	All	15.2	28.7	32.3	70.5	95.9
	Anadromous	All	25.3	55.1	65.8	128	171
	All fish	Puget Sound	30.0	56.4	63.5	139	189
	Finfish	Puget Sound	21.6	45.0	56.5	103	143
	Shellfish	Puget Sound	6.4	14.3	14.8	33.5	51.9
	Non-anadromous	Puget Sound	6.5	12.3	13.9	30.3	41.2
	Anadromous	Puget Sound	20.2	44.1	52.6	103	137

See Polissar et al., 2012, Table E-1.

In 1998, the Suquamish Tribal Council conducted a survey of its members living on and near the Port Madison Indian reservation on the Puget Sound.[194] Published in

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193 Ecology, *Final FCR Report, supra* n. 65, at 56 tbl. 24; *see also* Toy, *supra* n. 192.

194 Ecology, *Final FCR Report, supra* n. 65, at 58.

2000, 12 years ago, the survey found the mean fish consumption rate for tribal adults of 214 grams/day of all fish species from all sources and a 95th percentile consumption of 797 grams/day.[195] As reported by Ecology, the results of the Suquamish Tribe survey are as follows:[196]

Table 26. Suquamish Tribal Adult Fish Consumption Rates by Species Group and Source

Population Tribal	Species Group	Harvest Source of Fish	Descriptive Statistics (g/day)				
			50th Percentile	Mean	75th Percentile	90th Percentile	95th Percentile
Suquamish Tribe	All	All Sources	132	214	284	489	797
	Shellfish	All Sources	64.7	134	145	363	615
	Non-anadromous*	All Sources	102	169	219	377	615
	Anadromous	All Sources	27.6	48.8	79.1	133	172
	All	Puget Sound	57.5	165	221	397	767
	Shellfish	Puget Sound	52.4	109	118	294	499
	Non-anadromous*	Puget Sound	49.1	126	116	380	674
	Anadromous	Puget Sound	21.8	38.6	62.5	105	136

See Polissar et al., 2012

*Based on an assumed n = 90 consumers.

Finally, Ecology accepted as scientifically defensible the results of an Asian and Pacific Islander seafood consumption study in King County conducted in 1997, 15 years ago. This survey found a mean fish consumption of 117 grams/day and a median of 78 grams/day.[197] As reported by Ecology, the Asian and Pacific Island survey found the following:[198]

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195 *Id*. at 61.

196 *Id*. at 61 tbl. 26; *see also* Suquamish Tribe, *Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservations, Puget Sound Region* (Aug., 2000) available at http://www.deq.state.or.us/wq/standards/docs/toxics/suquamish2000report.pdf (last visited Aug. 23, 2013).

197 *Ecology Final FCR Report, supra* n. 65, at 65.

198 *Id*. at 69 tbls. 30, 31; *see also* Ruth Sechena, Connie Nakano, Shiquan Liao, Nayak Polissar, Roseanne Lorenzana, Simon Truong & Richard Fenske, *Asian and Pacific Islander Seafood Consumption Study*, EPA 910/R-99-003 (May 27, 1999) available at http://yosemite.epa.gov/r10/OMP.NSF/webpage/Asian+and+Pacific+Islander+Seafood+Consumption+Study/$FILE/api-seafood.pdf (last visited Oct. 14, 2013).

Table 30. API Adult Seafood Consumption Rates by Species Group and Source

Population API	Species Group	Source of Fish	Descriptive Statistics (g/day)		
			50th Percentile	90th Percentile	95th Percentile
Asian-Pacific Islander (API)	Total seafood consumption	All sources	74.0	227	286
	All species	Harvested anywhere	6.5	25.9	58.8
	All species	Harvested from King County	5.7	22.2	48.4
	Non-anadromous species	Harvested anywhere	6.2	37.9	54.1
	Non-anadromous species	Harvested from King County	6.0	20.1	45.5

Sources: Adapted from Kissinger, 2005, Table 5. See also Polissar et al., 2012.

Table 31. API Seafood Consumption Rates Adjusted for Cooking Loss

Population API	Species Group	Source of Fish	Descriptive Statistics (g/day)		
			50th Percentile	90th Percentile	95th Percentile
Asian-Pacific Islander (API)	Total seafood consumption	All sources	77.8	236	306
	All species	Harvested anywhere	6.9	49.1	76.3
	All species	Harvested from King County	5.8	25.5	57.1
	Non-anadromous species	Harvested anywhere	7.1	54.2	72.3
	Non-anadromous species	Harvested from King County	6.6	33.4	57.3

Source: Adapted from Kissinger, 2005, Table 8. See also Polissar et al., 2012.

Ecology rejected all recreational angler surveys because they were based on creel methodologies instead of personal interviews. However, the agency did report that the mean consumption rates for both freshwater and marine fish range from 20 to 60 grams/day and the upper percentile consumption rates for recreational anglers are 200 to 250 grams/day for marine fish and 100 to 150 grams/day for freshwater fish.[199] It also concluded that a variety of factors – frequency of fishing, portion sizes, and contaminated source waters – "may put recreational fishers at higher risk of exposure to contaminants in finfish and shellfish."[200]

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199 *Id.* at 71.

200 *Id.* at 70.

Ecology has concluded that many Washington citizens consume far more than an average of 6.5 grams/day of fish. While most Washington residents would not be considered "high fish consumers," a significant portion of the population consumes far greater quantities of fish than the 6.5 grams/day fish consumption that underlies the NTR criteria that apply in Washington as well as greater than the national default of 17.5 grams/day. In particular, these segments of the population include members of American Indian Tribes, Asian and Pacific Islanders, and subsistence fishers who rely on fish as protein sources because, *inter alia*, they have low incomes.[201] Of Washington's adult population, the Ecology has estimated that between 730,000 and 1,920,000 consume more than the national median consumption rate of more than 100 grams/day,[202] which equates to a range of 10 to nearly 30 percent of the state's population.[203]

Ecology summarized studies it found to be technically defensible as follows:[204]

Table 33. Summary of Fish Consumption Rates from Studies Meeting the Measures of Technical Defensibility, All Finfish and Shellfish (g/day)

Population	Source of Fish	Number of Adults Surveyed	Mean	Percentiles			
				50th	75th	90th	95th
General population (consumers only)	All sources: EPA method	2,853	56	38	79	128	168
	All sources: NCI method	6,465	19	13	25	43	57
Columbia River Tribes	All sources	464	63	41	65	130	194
	Columbia River	–	56	36	57	114	171
Tulalip Tribes	All sources	73	82	45	94	193	268
	Puget Sound	71	60	30	75	139	237
Squaxin Island Tribe	All sources	117	84	45	94	206	280
	Puget Sound	–	56	30	63	139	189
Suquamish Tribe	All sources	92	214	132	284	489	797
	Puget Sound	91	165	58	221	397	767

See also Polissar et al., 2012

201 *Id.* at 15.

202 *Id*. at 26.

203 Ecology, *Fish Consumption Rates Technical Support Document: A Review of Data and Information About Fish Consumption in Washington*, Publication No. 11-09-050 at 26 (Sept. 2011) (hereinafter "Draft FCR Report") available at https://fortress.wa.gov/ecy/publications/ publications/1109050.pdf (last visited Aug. 23, 2013).

204 Ecology, *Final FCR Report, supra* n. 65, at 75, tbl. 33.

In summary, Ecology concluded that

> Based on the fish dietary surveys for Puget Sound and the Columbia River basin, fish-consuming populations within the Pacific Northwest consume comparable amounts of fish. The average fish consumption rates from all sources for the Columbia River, Tualalip, and Squaxin Island tribes are within a very small range of one another, about 60 to 80 g/day. Central tendency estimates of consumption, either average of median estimates, for Asian-Pacific Islanders, recreational anglers, and national (based on EPA information) estimates are also within this range. Fish consumption estimates from local harvests for tribal fish-consuming populations show a similar but slightly lower trend, around 55 to 60 g/day.[205]

Focusing on higher consuming populations within these populations, Ecology further concluded that

> The Puget Sound fish-consuming population that consumes the largest amount of fish is the Squamish Tribe, with higher central tendency estimates of consumption of about 130 to 215 g/day. For these fish-consuming populations, the trend for the upper 90th and 95th percentile fish consumption estimates shows a convergence that illustrates a consistently high rate of fish consumption.[206]

As Ecology notes in its *Final FCR Report*, "[t]there have been many scientific and regulatory developments related to fish consumption rates over the past 20 years."[207] Twenty years is far from the timely updates to toxic criteria Congress intended when it passed the Clean Water Act Amendments in 1987.

VI. Pollutants for Which Toxic Criteria Have Not Been Updated in Washington's Water Quality Standards Since 1992

Section 303(c)(2)(B) of the CWA requires states to "adopt criteria for all toxic pollutants listed pursuant to section 1317(a)(1) of this title for which criteria have been published under section 1314(a) of this title, the discharge or presence of which in the affected waters could reasonably be expected to interfere with those designated uses

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205 Ecology, *Final FCR Report*, *supra* n. 65, at 75-76.
206 *Id*. at 76.
207 *Id*. at xiii.

adopted by the State, as necessary to support such uses" "[w]henever a State reviews water quality standards pursuant to paragraph (1) of this subsection, or revises or adopts new standards pursuant to this paragraph." Not surprisingly, EPA informed states in guidance memoranda that "EPA expects each State to comply with the new statutory requirements in any section 303(c) water quality standards review initiated after enactment of the Water Quality Act of 1987."[208]

Ecology has revised its water quality standards and EPA has approved revised and new water quality standards numerous times since EPA adopted the NTR and established Washington's toxic criteria. Specifically, since 1992, Washington submitted new or revised standards on or about June 3, 1996 (pertaining to Sediment Management Standards); on or about December 5, 1997 (pertaining to water uses and criteria classes; natural conditions; criteria for lake nutrients, chronic marine copper, chronic site-specific cyanide for Puget Sound, and ammonia; metals conversion factor; general considerations (fresh/salt water boundaries, fish passage, total dissolved gas, compliance schedules, and wetlands); short-term modifications, and specific classifications); on or about July 28 or August 1, 2003 (pertaining to a change to the use-based system for freshwater uses and criteria; use designations; antidegradation; variance, Use Attainability Analysis, offsets, and site-specific criteria provisions; and criteria (for lake nutrients, toxics narrative, temperature, dissolved oxygen, chronic cyanide outside Puget Sound, and ammonia)); on or about December 8, 2006 (pertaining to use designations and definitions; criteria (temperature, narratives, ammonia)); on or about June 16, 2011 (pertaining to minor

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208 *See, e.g.*, EPA, *Guidance for State Implementation of Water Quality Standards for CWA Section 303(c)(2)(B)* at 15 (Dec. 1988) available at http://water.epa.gov/scitech/swguidance/standards/upload/1999_11_03_standards_finalguidance.pdf (last visited Oct. 14, 2013).

errors and revisions); and most recently on or about March 22, 2013 (pertaining to revisions to the Sediment Management Standards). On July 9, 2007, EPA amended the NTR to remove Washington's marine copper and cyanide chronic aquatic life criteria.[209]

In none of the approval or disapproval actions taken by EPA on the above-listed Ecology submissions to EPA did EPA find that Washington had failed to adopt criteria for all toxic pollutants for which EPA has adopted new or revised recommended 304(a) criteria, as required by the statute. Nor did EPA make findings that Washington's NTR or aquatic life criteria were no longer consistent with (1) EPA's 1999 revised recommended 304(a) criteria,[210] (2) EPA's 2002 revised recommended 304(a) criteria,[211] (3) 83 of EPA's 304(a) recommended criteria that were updated to reflect the change in the national default fish consumption rate of 17.5 grams/day on December 27, 2002,[212] or

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[209] 72 Fed. Reg. 37109 (July 9, 2007).

[210] 63 Fed. Reg. 68354 (Dec.10, 1998) ("The national recommended water quality criteria include: previously published criteria that are unchanged; criteria that have been recalculated from earlier criteria; and newly calculated criteria, based on peer-reviewed assessments, methodologies and data, that have not been previously published."); EPA *National Recommended Water Quality Criteria – Correction*, EPA 822-Z-99-001 (April 1999).

[211] EPA, *National Recommended Water Quality Criteria: 2002*, EPA-822-R-02-047 at 2 (Nov. 2002) ("The national recommended water quality criteria [in this compilation] include: previously published criteria that are unchanged, criteria that have been recalculated from earlier criteria (63 FR68354, 12/10/1998) and newly calculated criteria based on peer-reviewed assessments and data.").

[212] EPA, *Revision of National Recommended Water Quality Criteria*, 67 Fed. Reg. 79091 (Dec. 27, 2002). EPA announced the availability of an updated compilation of its 304(a) criteria in which it the "revised human health criteria specifically integrate the new fish consumption rate of 17.5 grams/day, relative source contribution (RSC) factors obtained from primary drinking water standards, and any new cancer potency factors (q1*s) or reference doses (RfDs) in the Agency's Integrated Risk Information System (IRIS)." *See also* EPA, *Revision of National Recommended Water Quality Criteria, What's new in the updated compilation?* available at http://water.epa.gov/scitech/swguidance/standards/criteria/current/wqctablefs2002.cfm.

EPA's 2003 updates to 15 human health recommended 304(a) criteria revised based on the *2000 Methodology*.[213]

EPA also failed to make findings that Washington had failed to adopt new or revised criteria consistent with 304(a) criteria that had not been published in 1992 when EPA adopted the NTR for Washington or that had been updated for reasons other than the change in the default fish consumption rate. For example, EPA's most recent published compilation of 304(a) recommended criteria includes footnotes that provide information on the criteria that have been revised since EPA's adoption of the NTR.[214] Footnote "B" indicates that a criterion has been revised as of May 17, 2002 and footnote "ll" that a revision dates to June 10, 2009.[215] Footnote "K" indicates that a "recommended criterion is based on a 304(a) aquatic life criterion that was issued in the 1995 Updates[.]"[216] EPA's current web-based compilation of 304(a) recommended criteria indicates that since the 2009 EPA has published precisely one new recommended criterion, for carbaryl aquatic life protection.[217]

Specifically, EPA has approved Washington water quality standards at least five times since 1992 and failed each time to determine that Washington's aquatic life criteria

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[213] 68 Fed. Reg. 75507 (Dec. 31, 2003). The notice announced the revision of human health criteria for the following pollutants: chlorobenzene; cyanide; 1,2-dichlorobenzene; 1,4-dichlorobenzene; 1,1-dichloroethylene; 1,3-dichloropropene; endrin; ethylbenzene; hexachlorocyclopentadiene; lindane; thallium; toluene; 1,2-transdichloroethylene; 1,2,4-trichlorobenzene; and vinyl chloride.

[214] EPA, *National Recommended Water Quality Criteria, (2009)* available at http://water.epa.gov/scitech/swguidance/standards/criteria/current/upload/nrwqc-2009.pdf (last visited Oct. 14, 2013).

[215] *Id*. at 8, 11.

[216] *Id*. at 9; *See also* EPA, *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*, EPA 820-B-96-001 (Sept. 1996).

[217] EPA, *National Recommended Water Quality Criteria* available at http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm (last visited Oct. 14, 2013).

are inconsistent with CWA Section 303(c)(2)(B) for the following pollutants for which EPA had issued new and revised 304(a) recommended criteria: acrolein, arsenic, carbaryl, cadmium, chromium (III), chromium (VI), copper, diazinon, dieldrin, endrein, gamma-BHC (Lindane), mercury, nickel, nonylphenol, parathion, pentachlorophenol, selenium, tributyltin, and zinc. EPA has likewise approved Washington water quality standards and failed to determine that Washington's human health criteria are inconsistent with CWA Section 303(c)(2)(B) for the following pollutants for which EPA had issued new and revised 304(a) recommended criteria: acenaphthene, acrolein, acrylonitrile, aldrin, alpha-BHC, alpha-endosulfan, anthracene, antimony, benzene, benzidine, benzo(a) anthracene, benzo(a) pyrene, benzo(b) flouranthene, benzo(k) flouranthene, beta-BHC, beta-endosulfan, bis(2-chloroethyl) ether, bis(2-Chloroisopropyl) ether, bis(2-ethylhexyl) phthalate, bromoform, butylbenzyl phthalate, carbon tetrachloride, chlordane, chlorobenzene, chlorodibromomethane, chloroform, chrysene, cyanide, dibenzo(a,h)anthracene, dichlorobromomethane, dieldrin, diethyl phthalate, dimethyl phthalate, di-n-butyl phthalate, dinitrophenols, endosulfan sulfate, endrin, endrin aldehyde, ether, bis(chloromethyl), ethylbenzene, fluoranthene, fluorene, gamma-BHC (Lindane), heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorobutadiene, hexachlorocyclo-hexane, hexachlorocyclopentadiene, hexachloroethane, ideno(1,2,3-cd)pyrene, isophorone, methylmercury, methyl bromide, methylene chloride, nickel, nitrobenzene, nitrosodibutylamine N, nitrosodiethylamine, N, nitrosopyrrolidine N, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, pentachlorobenzene, pentachlorophenol, phenol, polychlorinated biphenyls, pyrene, selenium, tetrachlorobenzene,1,2,4,5-, tetrachloroethylene, thallium,

toluene, toxaphene, trichloroethylene, trichlorophenol,2,4,5-, vinyl chloride, zinc, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloroethylene, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, 1,2-diphenylhydrazine, 1,2-trans-dichloroethylene, 1,3-dichlorobenzene, 1,3-dichloropropene, 1,4-dichlorobenzene, 2,3,7,8-TCDD, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2,4-dinitrophenol, 2,4-dinitrotoluene, 2-chloronaphthalene, 2-chlorophenol, 2-methyl-4,6-dinitrophenol, 3,3'-dichlorobenzidine, 3-methyl-4-chlorophenol, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.

VIII. Long-Delayed Efforts to Adopt Human Health Criteria for Washington Require EPA Action

A. Washington's Efforts to Adopt Adequate Human Health Criteria Have Been and Continue to be Stalled by Political Concerns

As discussed above, the first regional studies that demonstrate the NTR criteria are and continue to be grossly inadequate to provide full protection of Washington's designated uses were published 18 years ago. In September 2011, Ecology issued a first version of its fish consumption report, evaluating the fish consumption studies applicable to Washington.[218] In the report, Ecology included recommendations that were later stripped from the final document. Specifically, Ecology proposed a default fish consumption rate for Washington waters in the range of 157 to 267 grams/day, including salmon consumption.[219] Ecology pointed out that even the 54 grams/day fish consumption rate that underlies clean-up standards adopted under the state's Model Toxics Control Act, "does *not* represent the reasonable maximum exposure (RME) to

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218 Ecology, *Draft FCR Report, supra* n. 203.

219 *Id*. at 103.

Washington residents who consume larger amounts of fish and shellfish. These include Native Americans, Asian and Pacific Islanders, and other Washington residents."[220]

In August 2012, Ecology issued a final version of its fish consumption report.[221] As an indication of Washington's growing disinclination to update its fish consumption rates and adopt new human health criteria for toxics, Ecology retracted the recommendations set out in the first version. Ecology finalized the report, the purpose of which was to "compile and evaluate available information on fish consumption in Washington State . . . not designed to resolve policy issues associated with using that information to make regulatory decisions."[222] Having moved forward to finalize its report on local fish consumption surveys it deemed scientifically defensible, Ecology simultaneously moved backwards in its regulatory efforts.

Ecology had concluded in its *Draft FCR Report* that "a range can be developed within which default fish consumption rates should be established" and that its proposed range was "technically defensible."[223] The agency also acknowledged that "Washington has a large fish-consuming population that consumes fish in larger amounts than the current default fish consumption rates" and that "Washington has a significant number of fish consumers as well as high fish-consuming populations."[224] While carefully avoiding making any regulatory recommendations in its *Final FCR Report*, Ecology concluded that the mean as well as 50th percentile consumption of fish in Washington well exceeds the 6.5 grams/day in the NTR, even putting aside a requirement to protect

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220 *Id*. at 104 (emphasis added).
221 Ecology, *Final FCR Report, supra* n. 65.
222 *Id*. at xii.
223 Ecology, *Draft FCR Report, supra* n. 203, at 111.
224 *Id*. at 111-112.

fish consumers who are at the higher end of consumption levels. Specifically, the *Final FCR Report* makes the following findings:[225]

Table 1. Summary of Fish Consumption Data, All Finfish and Shellfish (g/day)

Population	Source of Fish	Number of Adults Surveyed	Mean	Percentiles		
				50th	90th	95th
General population (consumers only)	All sources: EPA method	2,853	56	38	128	168
	All sources: NCI method	6,465	19	13	43	57
Columbia River Tribes	All sources	464	63	41	130	194
	Columbia River	–	56	36	114	171
Tulalip Tribes	All sources	73	82	45	193	268
	Puget Sound	71	60	30	139	237
Squaxin Island Tribe	All sources	117	84	45	206	280
	Puget Sound	–	56	30	139	189
Suquamish Tribe	All sources	92	214	132	489	797
	Puget Sound	91	165	58	397	767
Recreational Fishers (compilation of multiple studies)	Marine waters, WA State	–	11–53	1.0–21	13–246	
	Freshwater, WA State	–	6.0–22	–	42–67	

Sources: Adapted from Polissar et al., 2012, Table E-1. Data for recreational fishers is from Table 3, Technical Issue Paper: *Recreational Fish Consumption Rates* (Ecology, 2012). General population data are for consumers only, as opposed to per capita. See Chapters 4 and 6.

Despite its own report's conclusions that the NTR criteria are wholly incapable of protecting Washington's designated uses, Ecology has delayed updating the state's human health criteria for toxics, with no end in sight. As long ago as February 2009, now four and a half years ago, Ecology acknowledged its need to address the inadequate fish consumption rates that underlie both the state's sediment clean-up standards and the NTR human health criteria.[226] In July 2009, Ecology published an issue paper to answer the question: "What rule revisions are needed to incorporate new scientific information and federal guidance on the health risks for people consuming large amounts of fish and shellfish?"[227] In the paper, Ecology acknowledged that

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225 Ecology, *Final FCR Report, supra* n. 65, at xvi.

226 Ecology, *Intent to begin rulemaking (CR-101 filed)* (Feb. 2009) available at http://www.ecy.wa.gov/programs/tcp/regs/2009MTCA/CR101SiteRegisterAnnouncement%2002-09.pdf (last visited Aug. 23, 2013).

227 Ecology, *Fish Consumption Rates for High Exposure Population Groups* (July 2009) (hereinafter "2009 Issue Paper") available at http://www.ecy.wa.gov/programs/

> Several Northwest tribes have developed surface water quality standards that are based on human health protection. The fish consumption rates used to develop those standards range from 6.5 to 170 g/day. More recent standards have generally used consumption rates much higher than the MTCA rule default fish consumption rate of 54 g/day.[228]

Ecology also pointed out that

> Since the 2001 rule revisions, there have been several important scientific and regulatory developments relevant to the current rulemaking process.
>
> ● Ecology has established cleanup standards at several sites that are based on tribal fish consumption scenarios. These represent site-specific interpretations of the narrative standards in the MTCA and SMS rules. In general, fish consumption rates used at these sites range from 50 to 300 g/day.
> ● EPA-Region 10 has published a Decision-Making Framework for selecting and using tribal consumption data to establish cleanup requirements at federal Superfund sites. The framework identifies a four-tiered hierarchy of preferred data sources. Under the EPA Framework, exposure estimates for particular tribes can be based on fish consumption surveys from other tribes (Suquamish or Tulalip Tribes) with similar dietary habits.
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> * * *
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> ● The Oregon Environmental Quality Commission approved the Oregon Department of Environmental Quality (ODEQ) plan to update Oregon's water quality standards for toxic pollutants using a new fish consumption rate of 175 g/day.[229]

Ecology closed the issue paper by recognizing the relevance of the fish consumption rates to Washington's water quality standards: "[factors that to consider include] [r]equirements in other state and federal laws and regulations. This includes methods and policies used to characterize fish consumption rates and the use of that information in regulatory decision-making."[230]

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tcp/regs/2009MTCA/issues/fishConsumptionRatesIssueSummaryJuly2009.pdf (last visited Aug. 23, 2013).

228 *Id*. at 3.

229 *Id*. (footnotes omitted).

230 *Id*. at 4.

In 2010, Ecology began evaluating the identical Washington fish consumption surveys for the purpose of adopting new human health criteria for surface water, holding meetings, workshops, and discussing the data through 2011. In its 2011 Draft FCR Report, Ecology not only clearly acknowledged "Washington water quality standards are based on an outdated fish consumption rate of 6.5 g/day," but also noted pointedly that because Washington's "sediment cleanup standards are set on a site-by-site basis using site specific fish consumption rates, [the sediment standards involve] a process that can contribute to cleanup delay,"[231] a conclusion it had drawn two years earlier. In contrast, Ecology does not even bother to assess site-specific fish consumption rates in its Total Maximum Daily Load clean-up program under CWA Section 303(d), as discussed *supra*, Section III.B. Two years have passed since Ecology publicly confirmed that the NTR criteria upon which it bases all of its CWA regulatory activities are "outdated."[232]

In August 2011, Ecology set out its plan for revising Washington's human health criteria as part of its triennial review of water quality standards:

> Ecology is currently addressing fish consumption rates for clean-up sites in the Sediment Management Standards (SMS) rule revision. Parts of the SMS are Clean Water Act-approved standards. *The fish consumption rate that is adopted into the SMS will more than likely form the basis of future human health-based water quality criteria.* As part of the SMS rule-making the agency will consider the fish consumption studies that have been done in the Pacific Northwest, as well as EPA guidance on developing human health-based criteria.[233]

Following this statement and beginning in December 2011, Ecology held a series of public workshops to discuss its efforts to update its fish consumption rate and establish

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231 Ecology, *Draft FCR Report, supra* n. 203, at 103.

232 *Id*. at 104.

233 Ecology, *Responsiveness Summary – Triennial Review 8/2011* at 14 (Aug. 2011) (emphasis added) available at http://www.ecy.wa.gov/programs/wq/swqs/TriennialRevComm/triennialRevResponsetoCommTable082011.pdf (last visited Aug. 23, 2013).

human health criteria. However, in July 2012, Ecology issued an Open Letter announced an abrupt turnaround, a decision to forgo a default fish consumption rate in its Sediment Management Standards.[234] The purported basis for the reversal was that "questions that more appropriately belong in the Surface Water Quality Standards process – which we had planned to start next year – are being raised in the SMS process, without an effective way to address those questions." The letter went on to announce that Ecology was no longer using the *Final FCR Report* to address "policy issues associated with using that information to make regulatory decisions. Those issues will be dealt with in separate rulemaking documents and processes." As a result, in August 2012, Ecology issued a revised timeline for revising the state's water quality standards, targeting a final rule for "Water Quality Implementation Tools Rulemaking for developing compliance options for dischargers" for the Fall of 2013 and final rule adoption for human health criteria for toxics in Spring of 2014.[235] In September 2012, Ecology initiated a rulemaking pre-proposal.[236] Further delays make Ecology's meeting this timeline unlikely. For example, the agency's advisory group, termed "The Delegates' Table," which "will provide advice and perspective to the agency as it addresses the complex science and public policy issues of the rulemaking," has met only five times since its inception in August 2012.[237]

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234 Ecology, Open Letter to Interested Parties *Re: Ecology's Approach to Fish Consumption Standards in Washington State* (July 16, 2012).

235 Ecology, *Revised Timeline for Sediment Management Standards & Surface Water Quality Standards Revisions* (Aug. 8, 2012) available at http://www.ecy.wa.gov/toxics/docs/20120828_RevisedTimeline.pdf (last visited Aug. 23, 2013).

236 Ecology, *Rule Pre-proposal – Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A WAC* (Sept. 12, 2012) available at http://www.ecy.wa.gov/programs/wq/swqs/RulePre.pdf (last visited Aug. 23, 2013).

237 Ecology, *Water Quality Policy Forum and Delegates' (sic) Table* at http://www.ecy.wa.gov/programs/wq/swqs/hhcpolicyforum.html (last visited Oct. 14, 2013).

Superficially, the fact that Ecology issued its *Final FCR Report* might have appeared to signal progress whereas, in fact, Ecology used the report to set its rulemaking effort significantly backwards. Instead of pursuing the original intent set out in its *Draft FCR Report*, Ecology changed the purpose of the document to avoid making any headway in its regulatory efforts to update Washington's human health criteria:

> This document is narrower in scope than Version 1.0 of the Technical Support Document (distributed in October 2011). . . . One purpose of the Technical Support Document (Version 1.0) was to identify a recommended range of fish consumption rates for consideration in the [sediment management standards] SMS rule revision process. Since that time, Ecology has decided not to propose a default fish consumption rate in the SMS rule. . . . Ecology is also beginning the process to revise the Water Quality Standards for Surface Waters and adopt human health criteria.
>
> Instead of identifying a fish consumption rate appropriate for use in a particular regulatory context, this document compiles relevant data and information. [238]

The failure of Ecology to determine a default fish consumption rate for the SMS rules is evidence that Ecology is unlikely to timely resolve the fish consumption rate for its water quality criteria. Likewise, its choice to side-step making a recommendation to itself on the appropriate fish consumption rate upon which to establish new human health criteria for surface waters is further evidence of the likelihood Ecology will not adopt new criteria.

This revised timeline announced by Ecology and the removal of recommendations from its Final FCR Report represented a significant slowing in Ecology's original schedule. As the Northwest Indian Fisheries Commission ("NWIFC") stated in a letter

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238 Ecology, *Final FCR Report*, *supra* n. 65, at xii.

on behalf of its member Tribes[239] to Ecology in August 2012, "[t]he tribes were repeatedly assured by Ecology that at a minimum, this pathway would result in revised FCRs in the technical document and the sediment management standards before the completion of the current state administration's term."[240] NWIFC appealed to EPA for assistance in keeping Ecology to its promises, explaining how Ecology had committed to prioritizing completion of the FCR Report to support new default fish consumption rates in the Sediment Management Standards as a first step towards revising the human health criteria. After gaining tribal agreement with this approach, Ecology proceeded to

> remove[] a default FCR from the sediment management standards, and has delayed the completion of the Technical Support Document on Fish Consumption Rates – *stripping the document of important summary results and conclusions*. This pathway is completely contrary to commitments made to tribes as recently as the June 2012 Centennial Accord meeting at Suquamish.[241]

The NWIFC concluded that "Ecology, tribes, and others have invested years of work to develop an accurate and scientifically sound default FCR with poor results to date."[242]

In a subsequent letter, the NWIFC elaborated on the long passage of time in which Ecology had failed to act to revise its human health criteria, beginning in 1994,

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239 NWIFC member tribes are: Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish, Tulalip, Muckleshoot, Puyallup, Nisqually, Squaxin Island, Skokomish, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, Makah, Quileute, Quinault, and Hoh. NWIFC, *About Us* at http://nwifc.org/about-us/ (last visited Aug. 23, 2013).

240 Letter from Billy Frank, Jr., Chairman, Northwest Indian Fisheries Commission to Ted Sturdevant, Director, Washington Department of Ecology *Re: Ecology's proposed changes to the Fish Consumption Rate* (Aug. 16, 2012).

241 Letter from Billy Frank, Jr., Chairman, Northwest Indian Fisheries Commission to Dennis McLerran, Regional Administrator, EPA (Aug. 24, 2012)(emphasis added).

242 *Id*.

when the state was in receipt of the CRITFC survey.[243] Critically, over 13 years ago, Ecology, in conjunction with its Risk Assessment Forum – a group of agency staff including EPA – published a draft report assessing the CRITFC and other data .[244] The report recommended use of fish consumption rates in the range of 110 and 175 grams/day for marine and freshwater areas respectively and a default value of 143 grams/day for water quality screening criteria or standards for statewide use in both marine and freshwater.[245] The report recommended these default rates for what it termed a "reasonable maximum exposure" scenario "where the *overall* degree of protection should fall somewhere between the 90th and 98th percentile of exposure[.]"[246] Over a decade passed with no action by Ecology or EPA to respond to these recommendations, recommendations that bear a striking resemblance to Oregon's default fish consumption rate of 175 grams/day and to the recommendations in the Ecology *Draft FCR Report*.

NWIFC pointed to Ecology Director Jay Manning's [247] "commitment to complete human health criteria in water quality standards within the term of the current administration" and subsequent Ecology Director Ted Sturdevant's [248] having

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[243] Letter from Michael Grayum, Executive Director, Northwest Indian Fisheries Commission to Michael Bussell, Director, Office Water and Watersheds, EPA *Re: EPA engagement in Washington's development of water quality standards and attending fish consumption rates* (Sept. 7, 2012).

[244] Ecology, *Analysis and Selection of Fish Consumption Rates for Washington State Risk Assessments and Risk-based Standards* (March 1999) available at https://fortress.wa.gov/ecy/publications/publications/99200.pdf (last visited Oct. 14, 2013).

[245] *Id*. at 46, v. The report made other recommendations concerning shellfish consumption, review of new surveys, and needed research on fish consumption exposure pathways and types of species consumed by different populations. *Id*. at 46-48.

[246] *Id*. at iv (emphasis in original).

[247] Mr. Manning was Ecology Director from 2005-2009.

[248] Mr. Sturdevant was Ecology Director from 2009-2012.

"reaffirmed this commitment[.]"[249] However, as a result of the long-standing failure of Ecology to adopt scientifically sound human health criteria and the delays announced in mid-2012, the NWIFC requested that EPA "[d]isapprove those standards that include narrative or inaccurate FCRs, and do not utilize the well vetted technical information previously released to the public by Ecology in the September 2011 draft of the Fish Consumption Rates – Technical Support Document" and to "[t]ake immediate action to begin promulgation of state-wide or regional fish consumption rates, at or above the approved Oregon standards."[250]

Upon publication of the Ecology *Final FCR Report*, Ecology Director Ted Sturdevant candidly acknowledged that existing fish consumption surveys prove that "Washington has some of the highest fish-consuming communities in the country, but we are currently using the lowest fish consumption rate in our standards[.]" He also noted the Report "demonstrate[s] that we have communities that eat fish from our waters at much higher rates [than the NTR fish consumption rate].[251] But Ecology stopped very far short of a commitment to completing the regulatory revision of Washington's human health criteria it began almost 15 years ago. Instead, Director Sturdevant asserted that only after the state can ensure the development of "sensible, predictable compliance pathway[s] for our businesses" will the state adopt new criteria. He also hinted at the innumerable "public policy choices" imbedded in these regulatory decisions, choices that "have not been made."[252] The *Final FCR Report* sets out some of the many policy

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249 Grayum, *supra* n. 243, at 3.

250 *Id*. at 6-7.

251 Ecology, *Open Letter to Interested Parties Re: Final Fish Consumption Rates Technical Support Document* (Jan. 15, 2013).

252 *Id*.

choices that affect the setting of the criteria including but not limited to the choice of a fish consumption rate;[253] yet other policy choices involve the so-called implementation tools that Ecology seeks to adopt to provide regulatory relief to permitted NPDES sources.

B. EPA's Efforts to Encourage an Update to Washington's Fish Consumption Rates Have Failed

EPA's concerns about the fish consumption rates underlying Washington's regulatory programs are long-standing. In 1999, EPA participated in Ecology's Risk Assessment Forum which recommended the adoption of default fish consumption rates to establish human health criteria for Washington's waters.[254] In August 2007, EPA Region 10 issued regional guidance to address assessment of contamination at hazardous waste sites. [255] The guidance gave highest preference to "consumption rates derived from well-designed consumption surveys of Puget Sound Tribes, and lowest preference to default values from nationwide food intake studies. Local consumption rate data (95th percentile, uncooked weight, harvested from Puget Sound) were derived from fish and shellfish consumption studies for the Suquamish Tribe and the Tulalip Tribes." The

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253 Some of the policy choices set out in the Ecology Final FCR Report include: (1) which population groups to protect; (2) whether to protect the mostly highly exposed individuals or the average; (3) whether to reflect geographical variations in data; (4) whether to include salmonids; (5) whether to include sources of fish consumed; (6) whether to use data that reflect non-fish consumers; (7) other exposure variables; and (8) possible changes to the regulatory risk level. This list omits the entire discussion of so-called "implementation tools" intended to assure NPDES permitted sources do not have to meet the adopted criteria.

254 Ecology, *supra* n. 244.

255 EPA Region 10, *Framework for Selecting and Using Tribal Fish and Shellfish Consumption Rates for Risk-Based Decision Making at CERCLA and RCRA Cleanup Sites in Puget Sound and the Strait of Georgia* (August 2007), available at http://yosemite.epa.gov/R10/CLEANUP.NSF/7780249be8f251538825650f0070bd8b/e12918970debc8e488256da6005c428e/$FILE/Tribal%20Shellfish%20Framework.pdf (last visited Aug. 23, 2013).

guidance cited EPA's four-preference hierarchy set out in EPA's *2000 Methodology* for development of water quality human health criteria as the source of its hierarchy of preferred data sources. EPA lauded the high "quality of the survey methodology used in the available Puget Sound Tribal studies, [for which reason] EPA believes that these studies are appropriate to use to develop Puget-Sound harvested fish and shellfish consumption rates." EPA further stated that "the rates developed from the aforementioned studies should be used in preference to an estimate of an average subsistence consumption rate, as recommended in the EPA [*2000 Methodology*]." Sediment clean-up standards in Washington have, in fact, been developed based on tribal fish consumption "scenarios." Ecology and EPA currently establish site-specific sediment clean-up standards and/or screening levels based on tribal fish consumption rates in areas designated as usual and accustomed fishing areas for one or more tribes. In general, fish consumption rates used at these sites range from around 50 to 300 g/day.[256]

EPA continued to urge Washington to update its human health criteria for toxics in its comments submitted on Washington's triennial review in 2010 stating that "EPA urges Ecology to make the revision of Washington's human health criteria the most important priority in this Triennial Review," noting that it "is a priority for Region 10."[257] In that letter EPA also noted the age of the NTR criteria and the date of EPA's *2000 Methodology* calling for a fish consumption rate in Washington that better reflects reality. EPA concluded: "EPA believes that a fish consumption rate of 6.5 grams per day is not reflective of fish and shellfish consumers in the State of Washington," and urged Ecology

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256 Ecology, *2009 Issue Paper supra* n. 227, at 3.

257 Letter from Jannine Jennings, EPA Region 10, to Becca Conklin, Ecology (Dec.16, 2010) available at http://www.ecy.wa.gov/programs/wq/swqs/TriennialRevComm/US_EPA_Region_10.pdf (last visited Oct. 14, 2013).

to determine an appropriate rate with which to derive criteria that would be protective of the state's designated uses.

In September 2012, EPA wrote Ecology to express support for Washington's efforts to adopt new human health criteria "derived using scientifically sound data, including applicable regional and local fish consumption surveys. The surveys demonstrate that tribal and other high fish consuming residents are eating fish at rates significantly higher than the current default rates."[258] Citing the age of the NTR and *2000 Methodology*, EPA went on to say that "[i]t is crucial that the Department of Ecology continue to make progress in adopting human health criteria that incorporate scientifically sound data, including current information regarding realistic fish consumption rates." And EPA emphasized that "[t]he best available science now in-hand demonstrates that current standards are not based on realistic consumption rates for high fish consumers. If and when there is regional or local data showing higher fish consumption rates, it needs to be utilized for derivation of the State's human health criteria." The agency concluded: "EPA believes that a fish consumption rate of 6.5 grams per day is not reflective of fish and shellfish consumers in the State of Washington."

On January 17, 2012, EPA again informed Ecology that its NTR criteria were inadequate to fully protect designated uses and urged the state to update the criteria.[259] EPA told Ecology that its NTR criteria were based on a fish consumption rate of 6.5

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[258] Letter from Dennis McLerran, EPA Regional Administrator to Ted Sturdevant, Director, Department of Ecology (Sept. 6, 2012) available at http://www.ecy.wa.gov/programs/wq/swqs/FCRltrR10toEcy90612.pdf (last visited Oct. 15, 2013).

[259] Letter from Jannine Jennings, Manager Water Quality Standards Unit, EPA Region 10, to Kelly Susewind and Jim Pendowski, Ecology Re: *Comments on Ecology's Fish Consumption Rates Technical Support Document* (Jan. 17, 2012).

grams/day and that "several studies of Northwest populations [of people] indicate that this rate is not reflective of the amount of fish and shellfish consumed by some in the state of Washington. Therefore, it is appropriate and consistent with EPA guidance for Ecology to examine the current science to determine an appropriate fish consumption rate to use for deriving criteria protective of the state's designated uses." EPA "encourage[s] you to quickly incorporate this information into your rulemaking process and move forward with adopting revised criteria," because " EPA believes the information is currently available to make decisions on these matters and requests Ecology to quickly move through the process necessary to do so."

In June 2013, EPA once again reiterated its view that "[t]he best available science includes evidence of consumption rates well above 6.5 grams per day among high fish consumers and shows that the human health criteria currently in effect for Clean Water Act purposes in Washington are not sufficiently protective.[260] In Oregon's case, the EPA disapproved human health criteria similar to the currently applicable human health criteria for Washington under the National Toxics Rule (NTR)." EPA noted that "EPA disapproved Idaho's human health criteria derived using a fish consumption rate of 17.5 grams per day because Idaho did not consider the available information relevant to fish consumption when calculating their human health criteria. The EPA believes that there are sufficient regional and local fish consumption data available to revise human health criteria in both Washington and Idaho[.]" Contrasting the relative paucity of fish consumption data in Idaho, where EPA has already disapproved criteria based on the

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260 Letter from Dennis McLerran, EPA Region 10 Regional Administrator, to Maia Bellon, Director, Ecology (June 21, 2013) available at http://www.ecy.wa.gov/programs/wq/swqs/EcologyFCRLetter.pdf (last visited Oct. 15, 2013).

national default average of 17.5 grams/day, EPA stated that "[i]n Washington, in contrast with Idaho, the EPA believes that there are a number of scientifically sound data results specific to surveys conducted in the State for several population groups, including tribes, Asian Pacific Islanders, and recreational anglers."

In this final letter, EPA reminded Ecology that "should Washington's process be unnecessarily delayed, the EPA has the authority to amend the NTR human health criteria for Washington, which the EPA originally promulgated in 1992." EPA cited CWA Section 303(c)(4)(B) and the basis for EPA's promulgation of the NTR for states not complying with Section 303(c)(2)(B) and reiterated its view that surveys demonstrate "fish consumption levels are considerably higher than 6.5 grams per day in Washington."

C. EPA Promulgated Federal Standards in Similar Circumstances in California

On May 18, 2000 EPA published its final California Toxics Rule ("CTR"), a federal promulgation of numeric aquatic life criteria for 23 toxic pollutants and numeric human health criteria for 57 toxic pollutants, based on EPA's having found that California's lack of criteria for some pollutants did not fully satisfy CWA Section 303(c)(2)(B).[261] As EPA noted in finalizing the CTR, "[i]f EPA's review of the States' standards finds flaws or omissions, then the CWA authorizes EPA to correct the deficiencies (see CWA section 303(c)(4)).."[262] The basis for this promulgation was set out in the preamble to the rule:

> This rule is important for several environmental, programmatic and legal reasons. Control of toxic pollutants in surface waters is necessary to

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[261] EPA, *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule*, 65 Fed. Reg. 31682, 31684 (May 18, 2000).

[262] *Id.* at 31687.

> achieve the CWA's goals and objectives. Many of California's monitored river miles, lake acres, and estuarine waters have elevated levels of toxic pollutants. Recent studies on California water bodies indicate that elevated levels of toxic pollutants exist in fish tissue which result in fishing advisories or bans. These toxic pollutants can be attributed to, among other sources, industrial and municipal discharges. Water quality standards for toxic pollutants are important to State and EPA efforts to address water quality problems. Clearly established water quality goals enhance the effectiveness of many of the State's and EPA's water programs including permitting, coastal water quality improvement, fish tissue quality protection, nonpoint source controls, drinking water quality protection, and ecological protection. Numeric criteria for toxic pollutants allow the State and EPA to evaluate the adequacy of existing and potential control measures to protect aquatic ecosystems and human health. Numeric criteria also provide a more precise basis for deriving water quality-based effluent limitations (WQBELs) in National Pollutant Discharge Elimination System (NPDES) permits and wasteload allocations for total maximum daily loads (TMDLs) to control toxic pollutant discharges. Congress recognized these issues when it enacted section 303(c)(2)(B) to the CWA.[263]

EPA noted that California's own efforts to adopt new toxic criteria had "been stymied by a variety of factors" and that, as a result, EPA action was needed to "help restore equity among the States," because the CWA "should be implemented in a manner that ensures a level playing field among States."[264] EPA supported its determination "by information in the rulemaking record showing the discharge or presence of priority toxic pollutants throughout the State,"[265] and concluded that it was

> not necessary to support the criteria in today's rule on a pollutant-specific, water body-by-water-body basis. . . . [because to do so] would impose an enormous administrative burden and would be contrary to the statutory directive for swift action manifested by the 1987 addition of section 303(c)(2)(B) to the CWA. Moreover, because these criteria are ambient criteria that define attainment of the designated uses, their application to all water bodies will result in additional controls on dischargers only where necessary to protect the designated uses.[266]

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263 *Id*. at 31683-84.
264 *Id*. at 31684.
265 *Id*. at 31687.
266 *Id*.

EPA further justified this approach based on the statute and legislative history:

> Congress, by linking section 303(c)(2)(B) to the section 303(c)(1) three-year review period, gave States a last chance to correct this deficiency on their own. The legislative history of the provision demonstrates that chief Senate sponsors, including Senators Stafford, Chaffee and others wanted the provision to eliminate State and EPA delays and force quick action. Thus, to interpret CWA section 303(c)(2)(B) and(c)(4) to require such a cumbersome pollutant specific effort on each stream segment would essentially render section 303(c)(2)(B) meaningless. The provision and its legislative background indicate that the Administrator's determination to invoke section 303(c)(4)(B) authority can be met by the Administrator making a generic finding of inaction by the State without the need to develop pollutant specific data for individual stream segments.[267]

As in California, many of Washington's monitored river miles, lake acres, and estuarine waters have elevated levels of toxic pollutants, as demonstrated in Section III of this Petition. Likewise, as was true in California when EPA promulgated the CTR, recent studies on Washington water bodies indicate that elevated levels of toxic pollutants exist in fish tissue which result in fishing advisories or bans. These toxic pollutants can be attributed to, among other sources, industrial and municipal discharges and hazardous waste sites. Water quality standards for toxic pollutants are important to state and EPA efforts to address water quality problems. Clearly established water quality goals, if established by EPA in response to this Petition, would enhance the effectiveness of many of the state's and EPA's water programs including NPDES permitting, state 401 certifications of federally-licensed projects, coastal water quality improvement, fish tissue quality protection, nonpoint source controls, drinking water quality protection, and ecological protection. Updated and protective

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[267] *Id.*

numeric criteria for toxic pollutants, if established by EPA, would allow the state and EPA to evaluate the adequacy of existing and potential control measures to protect aquatic ecosystems and human health. Such numeric criteria would also provide a more precise basis for deriving water quality-based effluent limitations (WQBELs) in NPDES permits and wasteload allocations for TMDLs to control toxic pollutant discharges.

As in California, EPA need not make a pollutant-by-pollutant determination that Washington's aquatic life and human health criteria are both out-of-date and not in compliance with the requirements of Section 303(c)(2)(B) of the Act. EPA's action is necessary to meet the requirements of the Act and protect designated uses, as explained in the CTR preamble, and to establish a level playing field. The State of Oregon has adopted criteria based on fish consumption of 175 grams/day while EPA has allowed Washington's criteria to remain at levels based on a fish consumption of 6.5 grams/day, under the national average and well under the level of actual fish consumption in the state.

IX. EPA Region 10 Actions on State Human Health Criteria

In recent years, EPA Region 10 has disapproved states' proposed water quality standards when it found that the rate of fish consumption used in calculating the state's water quality criteria did not reflect existing data on fish consumption levels. EPA's disapprovals of both Oregon and Idaho human health criteria underscore EPA's

obligation to ensure that Washington State's water quality standards be "based on sound scientific rationale."[268]

A. EPA's Disapproval of Oregon's Proposed Human Health Criteria

On June 1, 2010, EPA disapproved Oregon's proposed human health toxics criteria, adopted and submitted to EPA in 2004, which were based on a default fish consumption rate of 17.5 grams/day.[269] In the 2004 review, Oregon considered, but rejected, using the CRITFC study to change the default fish consumption rate – at that point ten years after completion of the study. EPA subsequently disapproved the Oregon criteria based on the assertion that Oregon had adopted a fish consumption rate of 175 grams per day with which the criteria were incompatible. In fact, the Oregon Environmental Quality Commission had not adopted a fish consumption rate of 175 grams/day but, rather, had instructed the Oregon Department of Environmental Quality ("DEQ") to engage in an advisory committee process to develop water quality standards and rules in which human health criteria would be based on 175 grams/day. Until those standards and rules were adopted by the Commission on June 16, 2011, the State of Oregon had not adopted either a formal policy or a rule on the state's fish consumption rate. EPA subsequently approved, on October 17, 2011, Oregon's revised human health

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[268] 40 CFR § 131.11(a); *see also* EPA, *Technical Support Document EPA's Disapproval of the State of Idaho's Revised Human Health Water Quality Criteria for Toxics* 11 (May 10, 2012) (hereinafter "Idaho TSD") available at http://www.deq.idaho.gov/media/854335-epa-disapproval-letter-human-health-criteria-051012.pdf (last visited Oct. 14, 2013).

[269] EPA,*supra* n. 8; EPA, *Technical Support Document for Action on the State of Oregon's New and Revised Human Health Water Quality Criteria for Toxics and Revisions to Narrative Toxics Provisions Submitted on July 8, 2004* (June 1, 2010) available at http://www.epa.gov/region10/pdf/water/oregon-hhwqc-tsd_june2010.pdf (last visited Oct. 15, 2013).

criteria submitted to EPA on July 21, 2011 based on a fish consumption rate of 175 grams/day.[270]

EPA itself recently acknowledged the true basis of its disapproval of Oregon's 2004 human health criteria, which were based on 17.5 grams/day fish consumption. In a letter dated June 21, 2013, Regional Administrator Dennis McLerran told Ecology that "[i]n Oregon's case, the EPA disapproved human health criteria similar to the currently applicable human health criteria for Washington under the National Toxics Rule (NTR)."[271] This rationale for EPA's decision on Oregon's human health criteria is entirely consistent with the action taken by EPA on Idaho's proposed human health criteria, discussed *infra*.

EPA's subsequent approval of Oregon's revised criteria based on 175 grams/day fish consumption was memorialized in a memorandum for the record. The memo cited EPA's *2000 Methodology*'s recommendation that local and regional data be used to revise human health criteria.[272] EPA noted that Oregon's Human Health Focus Group identified eight applicable regional studies and one national study with useful data for estimating quantitative fish consumption rates. The Focus Group chose five surveys

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[270] EPA, Letter from Michael Bussell, EPA Region 10 to Neil Mullane, Oregon DEQ *Re: EPA's Approval of New And Revised Human Health Water Quality Criteria for Toxics and Implementation Provisions in Oregon's Water Quality Standards Submitted on July 12 and 21, 2011* (Oct. 17, 2011) available at http://www.epa.gov/region10/pdf/water/or-tsd-hhwqs-transmittal-ltr-2011.pdf (last visited Oct. 15, 2013); EPA, *Technical Support Document for Action on the State of Oregon's New and Revised Human Health Water Quality Criteria for Toxics and Associated Implementation Provisions Submitted July 12 and 21, 2011* (Oct. 17, 2011) (hereinafter "Oregon TSD") available at http://www.epa.gov/region10/pdf/water/or-tsd-hhwqs-2011.pdf (last visited Oct. 15, 2013).

[271] McLerran, *supra* n. 7.

[272] EPA, Jannine Jennings, Manager of the Water Quality Standards Unit, EPA Region 10 *Memorandum for the Record* (Oct. 17, 2011).

upon which to rely: the *Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin*; *A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region*; *Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation, Puget Sound Region*; *Asian and Pacific Islander Seafood Consumption Study*; and an *Estimated Per Capita Fish Consumption in the United States*.[273] EPA concluded that "Oregon has considered the local and regional studies and data available and relevant to this decision."[274] EPA also evaluated Oregon's choice to protect fish consumers, to include all species in fish consumption including anadromous fish, to apply its fish consumption rate statewide, to rely on EPA recommendations for protection of children at a rate of 165.5 grams/day due to lack of data, and to use a 90th or 95th percentile fish consumption rate. EPA found that Oregon's ultimate choice of 175 grams/day represents the 95th percentile of the CRITFC survey and is within the 90th percentile of the other studies and that because it is slightly higher than EPA's recommendation for children and women of child-bearing age, EPA determined it was sufficiently protective of those sensitive subpopulations.

B. EPA's Disapproval of Idaho's Proposed Human Health Criteria

In March 2006, the Idaho Legislature adopted updated human health water quality criteria for toxics, increasing the fish consumption variable from EPA's default national

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[273] Oregon DEQ, *Human Health Focus Group Report Oregon Fish and Shellfish Consumption Rate Project* 7 (June 2008) available at http://www.deq.state.or.us/ wq/standards/docs/toxics/HHFGFinalReportJune2008.pdf (last visited Oct. 15, 2013); EPA, *Estimated Per Capita Fish Consumption in the United States* (August 2002) available at http://water.epa. gov/scitech/swguidance/fishshellfish/outreach/upload/2002 _08_28_fish_consumption_report.pdf (last visited Oct. 15, 2013).

[274] EPA, *Oregon TSD, supra* n. 270, at 28.

6.5 grams/day to EPA's currently recommended national default rate of 17.5 grams/day.[275] In 2012, EPA disapproved Idaho's revised criteria on the basis that its use of EPA's default fish consumption rate of 17.5 grams/day was inadequate because it did not reflect local conditions, given available local data, and therefore "the criteria derivation does not demonstrate that the criteria protect Idaho's designated uses. Specifically, EPA is unable to ensure the use of a fish consumption rate of 17.5 g/day in deriving statewide criteria is consistent with 40 CFR 131.11(a)."[276] On this basis, EPA found that Idaho had failed to base its fish consumption rate, and thus its human health criteria, on a "sound scientific rationale."[277]

In its letter, EPA specified the actions required to remedy the disapproval: "Idaho must evaluate local and regional fish consumption information to determine whether its statewide criteria are protective of designated uses."[278] EPA specifically pointed to the CRITFC study and EPA also told Idaho to consider "information the EPA reviewed [that] suggests that recreational anglers in Idaho also consume fish at rates higher than the national default rate."[279] EPA further instructed Idaho to consider the requirements of 40 C.F.R. § 131.10(b) with regard to a state's needing to take into

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275 EPA, *Idaho TSD, supra* n. 268, at 4-5.

276 Letter from Michael Bussell, EPA Region 10 to Barry Burnell, Idaho DEQ Re: *EPA Disapproval of New and Revised Human Health Water Quality Criteria for Toxics, Idaho Docket 58-0102-0503* at 3 (May 10, 2012) available at http://www.deq.idaho.gov/media/854335-epa-disapproval-letter-human-health-criteria-051012.pdf (last visited Sept. 20, 2013).

277 *Id.*

278 *Id*. at 3-4.

279 *Id*. at 4.

consideration the water quality standards of downstream waters and its need to ensure that its criteria provide for the attainment and maintenance of such standards.[280]

X. Relief Requested by This Petition

For the reasons detailed above, Petitioners hereby petition EPA to: (1) make a determination (or affirm a previously made determination) pursuant to Section 303(c)(4)(B) of the Clean Water Act ("CWA") that the State of Washington's water quality toxic criteria for the protection of human health, set out in 40 C.F.R. § 131.36(d)(14), fail to provide full protection for its designated uses; (2) determine that the State of Washington has failed to adopt such human health and aquatic life criteria as are required by Section 303(c)(2)(B) in each triennial review of its water quality standards conducted since 1992; and (3) promulgate federal regulations applicable to Washington, pursuant to Section 303(c)(4), setting forth new and revised water quality standards as necessary to meet the requirements of the CWA.

Conclusion

While there is no apparent end in sight for completion of new human health criteria by Washington, the studies that provided the data upon which EPA relies to conclude that Washington's human health criteria are inadequate to fully protect its designated uses were completed as long as 19 years ago, for the Columbia River Tribes, and as recently as 13 years ago for the Suquamish Tribe. Washington's aquatic life criteria have not been updated since they were established in 1992. In EPA's own words, from the NTR promulgation, "[the] addition of section 303(c)(2)(B) to the Clean Water Act was a clear and unequivocal signal from Congress that it was dissatisfied with the

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280 *Id.*

slow pace at which States were adopting numeric criteria for toxic pollutants." EPA's failure to make a determination that Washington's toxic criteria must be revised and updated, to determine that Washington has conducted numerous triennial reviews in which it did not update its toxic criteria consistent with the requirements of CWA Section 303(c)(2)(B), and to promulgate federal replacement criteria for Washington are actions long overdue.

Respectfully submitted,

Nina Bell, Executive Director
Northwest Environmental Advocates
P.O. Box 12187
Portland, OR 97212

Dated this day, the 28th of October, 2013.

Attachments: List of Attachments
CD with attachments

List of Attachments to Petition for Rulemaking Under the Clean Water Act Regarding Water Quality Criteria for Toxics in the State of Washington

Letter from Michael Bussell, EPA Region 10 to Barry Burnell, Idaho DEQ *Re: EPA Disapproval of New and Revised Human Health Water Quality Criteria for Toxics, Idaho Docket 58-0102-0503* (May 10, 2012).

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Ecology, *TMDL Technical Assessment of DDT and PCBs in the Lower Okanogan River Basin* (July 2003) Publication No. 03-03-013 at 10-12.

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Ecology, *DDT Contamination and Transport in the Lower Mission Creek Basin, Chelan County* (Oct. 2004), Publication No. 04-03-043.

Ecology, *Yakima River Pesticides and PCBs Total Maximum Daily Load, Volume 1 Water Quality Study Findings* (April 2010), Publication No. 10-03-018 at 9-11.

Ecology, *A Total Maximum Daily Load Evaluation for Arsenic in the Similkameen River* (November 2002), Publication No. 02-03-044.

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Letter from Michael Grayum, Executive Director, Northwest Indian Fisheries Commission to Michael Bussell, Director, Office Water and Watersheds, EPA *Re: EPA engagement in Washington's development of water quality standards and attending fish consumption rates* (Sept. 7, 2012).

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EPA Region 10, *Framework for Selecting and Using Tribal Fish and Shellfish Consumption Rates for Risk-Based Decision Making at CERCLA and RCRA Cleanup Sites in Puget Sound and the Strait of Georgia* (Aug. 2007).

Letter from Jannine Jennings, EPA Region 10, to Becca Conklin, Ecology (Dec.16, 2010).

Letter from Dennis McLerran, EPA Regional Administrator to Ted Sturdevant, Director, Department of Ecology (Sept. 6, 2012).

Letter from Jannine Jennings, Manager Water Quality Standards Unit, EPA Region 10, to Kelly Susewind and Jim Pendowski, Ecology Re: *Comments on Ecology's Fish Consumption Rates Technical Support Document* (Jan.17, 2012).

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NORTHWEST ENVIRONMENTAL ADVOCATES

February 9, 2016

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
USEPA Ariel Rios Building (AR)
1200 Pennsylvania Avenue N.W.
Washington, DC 20004

Certified Mail; Return Receipt Requested

Re: **Second Follow Up to October 28, 2013 Northwest Environmental Advocates' Petition for Rulemaking on Water Quality Criteria for Toxics in the State of Washington**

Dear Ms. McCarthy:

As you know, on October 28, 2013, Northwest Environmental Advocates sent you a petition to update the State of Washington's aquatic life criteria in its water quality standards. We received no response. On August 31, 2015 we sent a follow-up letter urging you to respond to the petition and pointing out that EPA has expressed serious concerns about toxics in Washington waters, in particular those that affect the health of Puget Sound species, including threatened and endangered species. In response to our August letter, EPA wrote thanking us for our "valuable input" as it considers the matter but provided no indication of when, if ever, the agency intends to respond to the petition or take action to update Washington's aquatic life criteria.

The purpose of this letter is to point out some minor errors in our petition and to further elucidate the point that EPA's purported concern about the impacts of toxics on aquatic life in Washington's waters is not mirrored in its taking actions that are fully authorized—indeed required—by the Clean Water Act. Given the passage of time in which the Washington Department of Ecology has completely ignored its duty to update its aquatic life criteria and the inexcusable delays and fumbling in its various attempts to update its human health criteria, EPA simply cannot rely upon the state. With many of the species that depend upon fresh and marine waters of Washington facing the threat of extinction, it is equally inexcusable that EPA has taken no steps to bring this state's water quality standards for toxics into the correct century.

EPA Understanding of Toxic Impacts on Washington Waters, Especially Puget Sound

As we pointed out in our letter last year, EPA has long expressed concern about the health of Puget Sound including toxic contamination of many species, some of which are listed as threatened or endangered under the Endangered Species Act (ESA). One of those is the Southern Resident killer whale, a species that depends upon salmon, which themselves are listed under the ESA. Studies have demonstrated that the southern residents contain higher

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concentrations of persistent organic pollutants than the northern residents.[1] Because Chinook salmon are the primary prey of these killer whales,[2] subsequent studies have focused on the differences in contaminant levels in the salmon consumed by the different whale populations. Indeed, results demonstrate that concentrations of these persistent pollutants "were higher in coho and Chinook populations that have more coastal distributions than those measured in salmon species (e.g., chum, pink, sockeye) with more oceanic distributions." *Id.*[3]

Puget Sound is a key source of such contaminated salmon prey, including the Chinook. For example, a 2009 study showed that for "[t]he average PCB concentration measured in skinless muscle tissue samples of subadult and maturing Chinook salmon collected from Puget Sound was 53 ng/g (wet weight), which was 3–5 times higher than those measured in six other populations of Chinook salmon on the West Coast of North America."[4] Similarly, populations of

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[1] Sandra O'Neill *et al.*, *Regional patterns of persistent organic pollutants in five Pacific salmon species (Oncorhynchus spp) and their contributions to contaminant levels in northern and southern resident killer whales (Orcinus orca)*, 2006 Southern Resident Killer Whale Symposium, April 3-5, 2006, Seattle WA 98103 ("Previous studies on killer whales (Orcinus orca) have shown that southern residents contain higher concentrations of persistent organic pollutants (POPs) than northern residents (Ross et al., 2000; Rayne et al., 2004) and other North Pacific resident killer whale populations (Ylitalo et al., 2001; Herman et al., 2005). Elevated contaminant exposure in southern residents may be attributed to dietary differences between the two whale populations or to regional differences in concentrations of POPs in their prey. Based on observational data and stomach contents analyses, Ford et al. (1998) identified Pacific salmon (Oncorhynchus spp), especially Chinook salmon (O. tshawytscha), as the primary prey of southern and northern resident killer whales in their summer feeding ranges.").

[2] *See, e.g.*, Michael J. Ford *et al.*, *Estimation of a Killer Whale (Orcinus orca) Population's Diet Using Sequencing Analysis of DNA from Feces*. PLoS ONE 11(1): e0144956. doi:10.1371/journal.pone.0144956 (Jan. 6, 2016).

[3] "Regional variation in POP exposure was also evident in Chinook salmon (Figure 1) and appears to be associated with differences in marine distribution of these species. For example, Chinook salmon returning to Puget Sound had significantly higher concentrations of PCBs and PBDEs compared to other Pacific coast salmon populations we sampled. Furthermore, Chinook salmon that resided in Puget Sound in the winter rather than migrate to the Pacific Ocean ("residents") had the highest concentrations of POPs, followed by Puget Sound fish populations believed to be more ocean-reared. Fall Chinook from Puget Sound have a more localized marine distribution in Puget Sound and the Georgia Basin than other populations of Chinook from the west coast of North America and are more contaminated with PCBs (2 to 6 times) and PBDEs (5 to 17 times)."

[4] Sandra M. O'Neill *et al.*, *Marine Distribution, Life History Traits, and the Accumulation of Polychlorinated Biphenyls in Chinook Salmon from Puget Sound, Washington, Transactions* of the American Fisheries Society 138:616–632 (2009) ("Concentrations in the Puget Sound samples varied from 10 to 220 ng/g. A comparison of PCB body burdens between subyearling smolts and returning adults revealed that almost all of the PCBs (.96%) were accumulated in the marine habitats. Surprisingly, although PCBs were mostly accumulated in marine habitats, PCB exposure was lowest in the largest fish that spent the most time in

Pacific herring have demonstrated environmental segregation between Puget Sound populations and those that live in the Strait of Georgia.[5] That makes both the populations in Puget Sound and the whales that depend upon them at greater risk of exposure to toxic pollutants.

In addition to being the receiving water of the many sources of toxics that contribute to the pollution of its water column, sediment, and food chain, Puget Sound is hydrologically isolated from the Pacific Ocean, and therefore naturally accumulates toxic contaminants that would otherwise leave the ecosystem and enter the ocean.[6] EPA has acknowledged this same concern

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saltwater. Collectively, saltwater age, fish size, and lipids only accounted for 37% of the observed variation in PCB concentration, indicating that some other attribute of the fish's marine ecology accounted for the variation in PCB levels among Puget Sound Chinook salmon and for their elevated PCB levels relative to other West Coast populations. We hypothesized that residency in the contaminated Puget Sound environment was a major factor contributing to the higher and more variable PCB concentrations in these fish. This hypothesis was supported with an independent data set from a fishery assessment model, which estimated that 29% of subyearling Chinook salmon and 45% of yearling out-migrants from Puget Sound displayed resident behavior."); *see also* Sandra M. O'Neill, *et al.*, *Elevated levels of persistent organic pollutants in free ranging populations of Puget Sound populations of Pacific salmon: the importance of residency in Puget Sound*, Proceedings of the 2005 Puget Sound Georgia Basin Research Conference ("[T]hese results suggest that residence in Puget Sound exposes Chinook salmon to higher POP [persistent organic pollutants] concentrations and the longer a Chinook resides in Puget Sound, the greater its exposure to POPs will be.").

[5] James E. West, *et al.*, *Spatial extent, magnitude, and patterns of persistent organochlorine pollutants in Pacific herring (Clupea pallasi) populations in the Puget Sound (USA) and Strait of Georgia (Canada)*, Science of the Total Environment 394: 369 (2008) ("Puget Sound herring were 3 to 9 times more contaminated with polychlorinated biphenyls (PCBs) compared to Strait of Georgia herring and 1.5 to 2.5 times more contaminated with DDTs. . . . A multidimensional scaling map of the pattern or "fingerprint" of POPs in the six herring populations suggests strong environmental segregation of Puget Sound herring from the Strait of Georgia populations, and isolation of all Strait of Georgia populations from each other. This segregation likely resulted from differential exposure to contaminants, related to where these populations reside and feed, rather than differences in their age, size, trophic level, or lipid content.").

[6] *See, e.g.*, Tracy K. Collier, *et al.*, *Toxic Chemical Contaminants and Puget Sound*, *available at* http://depts.washington.edu/uwconf/2007psgb/2007proceedings/papers/12e_colli.pdf ("Puget Sound is unique among of our nation's estuaries in being a deep fjord-like structure (resulting from its formation by glaciers) that contains many urban areas within its drainage basin. Because there are several sills that restrict exchange with oceanic waters, Puget Sound is relatively poorly flushed compared to other urbanized estuaries of North America. Thus, toxic chemicals that enter Puget Sound have longer residence times within the system, and this entrainment of toxics can result in biota being exposed to increased levels of contaminants for a given input, compared to other large estuaries. This hydrologic isolation also puts the Puget Sound ecosystem at higher risk from other types of pollutants that enter the system, such as nutrients and pathogens. The problems in Puget Sound associated with contaminants are exacerbated by the added problem of biological isolation. Because Puget Sound is a deep,

as a key basis for reducing the flow of toxic contaminants into the Great Lakes, noting that the lakes "have proved to be sensitive to the effects of pollutants that accumulate in them. The internal responses and processes that operate in the Great Lakes because of their depth and long hydraulic residence times cause pollutants to recycle between biota, sediments and the water column."[7] Similar to the Great Lakes, not only is Puget Sound hydrologically isolated but many species in Puget Sound are biologically isolated, meaning that they take advantage of its deep waters to remain there during their entire life cycle. To address this special problem facing the Great Lakes, EPA published the Great Lakes Initiative (GLI), an extensive guidance including water quality criteria for protection of aquatic life and human health, and notably wildlife uses, which its recommended criteria otherwise ignore.[8] The GLI also includes methodologies and implementation procedures for developing Total Maximum Daily Loads (TMDL) and pollution controls such as NPDES discharge permits, all of which are intended to lessen the burden that toxic contaminants place on the system's designated uses. Unlike its approach to protecting the water quality and species of the Great Lakes, however, EPA has not recognized the need for any special treatment of Puget Sound waters—in either the establishment of water quality standards or regulatory mechanisms—to ensure protection of aquatic and aquatic-dependent species. In fact, it has done the opposite, by failing to ensure that even the basics of the Clean Water Act are in place.

Copper continues to be a prime example of the problem, as demonstrated in our earlier letter. EPA and numerous other federal agencies have recognized this, yet EPA continues to do nothing. We draw your attention to the following excerpt from the May 3, 2012 Puget Sound Region Federal Agency Action Plan prepared by no fewer than 14 federal agencies in an effort to respond to "concerns raised by Western Washington Treaty Tribes about continued habitat losses and associated diminishment of fishery resources":

> The FY12 Puget Sound funding allocation reflects EPA's desire to work with its partners to reverse the trend of habitat loss at the local level and improve salmon and shellfish recovery. This focus on shellfish, salmon and habitat is consistent with the areas that the Puget Sound Partnership focused on in updating the Action Agenda: 1) land development, 2) loss of floodplain function, 3) shoreline alteration, 4) urban stormwater runoff, and 5) wastewater. The funding allocation provides specific resources to address stormwater and its impacts on salmon, shellfish and habitat. Stormwater causes pre-spawning mortality in high percentages of healthy Coho salmon in Seattle creeks within hours of the fish entering those waters. Stormwater is also the primary way that many of the

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almost oceanic habitat, the tendency of a number of species to migrate outside of Puget Sound is limited relative to similar species in other large urban estuaries. This high degree of residency for many marine species, combined with the poor flushing of Puget Sound, results in a more protracted exposure to contaminants. <u>It is this combination of hydrologic and biologic isolation that makes the Puget Sound ecosystem highly susceptible to inputs of toxic chemicals compared to other major estuarine ecosystems</u>.") (emphasis in original).

[7] 60 Fed. Reg. 15366, 15367 (March 23, 1995).

[8] *Id.* at 15366; 40 C.F.R. § 132.6 Table 4 (Water Quality Criteria for Protection of Wildlife).

> contaminants of concern enter Puget Sound; pollutants like copper have been implicated along with habitat destruction as potentially leading to the poor marine survival rate observed for juvenile salmonids in Puget Sound. In rural areas, stormwater is a major pathway for pathogens entering shellfish beds. Habitat destruction by high stormwater flows will be further exacerbated by climate change.[9]

How can Washington properly regulate copper when its water quality criteria for freshwater copper are out-of-date and the subject of three jeopardy opinions in Oregon and Idaho?

The natural isolation of Puget Sound waters, in combination with high levels of urbanization that have contributed to their increasing contamination, strongly support EPA's immediate action on the first of these steps: establishing criteria that protect the species. At a minimum that should include updating the aquatic life criteria as our petition requested.

Errors in the 2013 Petition

As our August letter noted, NWEA's petition asserted there were 19 pollutants identified as being outdated, and omitted the then-recently updated 304(a) criteria for ammonia.[10] In fact, the history of Washington's aquatic life criteria is somewhat more complicated. The Federal Register notice for the National Toxics Rule (NTR) indicated that Washington would be covered under the NTR for: freshwater acute and chronic arsenic and selenium, marine acute arsenic and selenium, and marine chronic arsenic, copper, selenium, and cyanide.[11] However, EPA's March 1993 approval letter for Washington's 1992 submission of water quality standards stated that, contrary to the information in the notice, all freshwater and marine criteria for arsenic and selenium did not need to be in the NTR after all, leaving only the copper and cyanide criteria. In1997, Washington adopted revised marine copper (acute and chronic) and site-specific (inside Puget Sound) marine cyanide (acute and chronic) and in 2003 it adopted marine chronic cyanide criteria. As a result, in 2007, EPA removed Washington for all copper and cyanide aquatic life criteria from the NTR. In 1997 the Washington Department of Ecology ("Ecology") also revised criteria, including footnotes, for arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, selenium, silver, and zinc. The majority of these revisions made the criteria less stringent and Washington also failed to adopt or revise aquatic life criteria for which EPA-recommended criteria were then available. In 2006, Ecology revised its ammonia criteria, which EPA approved in 2008, prior to EPA's issuing its new recommended 304(a) ammonia criteria in 2013. Curiously, Ecology also appears to assert that it has updated its criteria as of

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[9] *Id*. at 8, *available at* http://www.westcoast.fisheries.noaa.gov/publications/habitat/puget_sound_action_plan_050312.pdf

[10] Letter from Nina Bell, NWEA to Gina McCarthy, EPA Administrator, *Follow Up to October 28, 2013 Northwest Environmental Advocates' Petition for Rulemaking on Water Quality Criteria for Toxics in the State of Washington*, fn 1 (The pollutants identified in the petition included: acrolein, arsenic, carbaryl, cadmium, chromium (III), chromium (VI), copper, diazinon, dieldrin, endrin, gamma-BHC (Lindane), mercury, nickel, nonylphenol, parathion, pentachlorophenol, selenium, tributyltin, and zinc.).

[11] 57 Fed Reg. 60848 (Dec. 22, 1992).

May 2013[12] as well as to acknowledge that its cadmium criteria are seriously outdated.[13]

Notwithstanding these revisions, most of which provided less protection to Washington's aquatic life designated uses, it remains true that since December 5, 1997—18 years ago— Washington has not revised or adopted many aquatic life criteria as required by the Clean Water Act. Among those for which criteria presumably were never adopted because they are not priority pollutants and those that have not been adopted or revised to be consistent with EPA's 304(a) recommendations because Washington is indifferent to protecting aquatic life are: acrolein, aluminum, ammonia, arsenic, carbaryl, cadmium, chromium III, copper, cyanide, demeton, diazinon, dieldrin, endrin, guthion, heptachlor epoxide, iron, Lindane, malathion, mercury, methoxychlor, mirex, nickel, nonylphenol, pentachlorophenol, PCBs, selenium, and tributylin.

Once again, we urge EPA to grant our petition in order that it may take the first steps to bringing the authority of the Clean Water Act to bear on the toxic pollution in Washington's waters and provide a greater likelihood of protection and recovery of the state's threatened, endangered, candidate, and proposed species.

Sincerely,

Nina Bell
Executive Director

cc: Dennis McLerran, Regional Administrator
Dan Opalski, Director, Region 10 Office of Water and Watersheds

Attachments:

1. Sandra O'Neill *et al.*, *Regional patterns of persistent organic pollutants in five Pacific*

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[12] *See* Washington Department of Ecology, Water Quality, Ground & Surface Water Quality Standards, Surface Water Quality Standards, Criteria, Toxics Standards and Criteria, Aquatic Life Protection at http://www.ecy.wa.gov/programs/wq/swqs/toxics.html ("Important note: In the 2006 rule adoption some of the metals formulas were slightly modified during the official publication process. Please see the "Spreadsheet for Calculating Toxics" to correctly calculate the freshwater metals criteria. This accidental error in the rule language is being addressed." Despite this statement there are no differences in the metals formulas between the spreadsheet and the 1997 submission to EPA. In addition, the 2006 corrections were entirely typographical.); Washington Department of Ecology, *TSD Calculations – Water Quality Criteria Table* (spreadsheet) ("Criteria last updated May 2013) *available at* http://www.ecy.wa.gov/programs/wq/permits/PermitCalcMarch9-2015.xlsm (last accessed Jan. 21, 2016).

[13] *Id.* In this spreadsheet, Ecology has inserted notes next to the two freshwater cadmium criteria stating "EPA promulgated a new criteria [sic] on 4/12/01 . . . EPA expects Ecology to adopt this new criteria [sic] by 2006."

salmon species (Oncorhynchus spp) and their contributions to contaminant levels in northern and southern resident killer whales (Orcinus orca), 2006 Southern Resident Killer Whale Symposium, April 3-5, 2006, Seattle WA 98103.

2. Sandra M. O'Neill *et al.*, *Marine Distribution, Life History Traits, and the Accumulation of Polychlorinated Biphenyls in Chinook Salmon from Puget Sound, Washington, Transactions* of the American Fisheries Society 138:616–632 (2009).

3. Sandra M. O'Neill, *et al.*, *Elevated levels of persistent organic pollutants in free ranging populations of Puget Sound populations of Pacific salmon: the importance of residency in Puget Sound*, Proceedings of the 2005 Puget Sound Georgia Basin Research Conference.

4. James E. West, *et al.*, *Spatial extent, magnitude, and patterns of persistent organochlorine pollutants in Pacific herring (Clupea pallasi) populations in the Puget Sound (USA) and Strait of Georgia (Canada)*, Science of the Total Environment 394: 369 (2008).

5. Tracy K. Collier, *et al.*, *Toxic Chemical Contaminants and Puget Sound* (2007).

6. Michael J. Ford *et al.*, *Estimation of a Killer Whale (Orcinus orca) Population's Diet Using Sequencing Analysis of DNA from Feces*. PLoS ONE 11(1): e0144956. doi:10.1371/journal.pone.0144956 (Jan. 6, 2016).

7. EPA *et al.*, Puget Sound Region Federal Agency Action Plan (May 3, 2012).

E. Scott Pruitt
Administrator

May 16, 2017

MEMORANDUM

SUBJECT: Temporary Delegation of Authority to Respond to a Petition for Rulemaking under the Clean Water Act to Update the Water Quality Criteria for Toxics in the State of Washington

FROM: E. Scott Pruitt

TO: Michael H. Shapiro, Acting Assistant Administrator
Office of Water

I hereby delegate to the acting assistant administrator for the U.S. Environmental Protection Agency's Office of Water the authority to sign the EPA's decision responding to the October 28, 2013, petition submitted by the Northwest Environmental Advocates requesting that the agency establish new and revised water quality standards for human health and aquatic life protection via federal rulemaking in Washington.

1. **AUTHORITY.** To sign the agency's decision responding to the October 28, 2013, petition submitted by the Northwest Environmental Advocates. Sections 553(e) and 555(b) of the Administrative Procedure Act provide that federal agencies may be petitioned for rulemaking and that agencies must respond to petitions "within a reasonable time."

2. **TO WHOM DELEGATED.** The Office of Water acting assistant administrator.

3. **LIMITATIONS.** This delegation is limited to the purposes stated above and may be exercised only within the limitations of the Clean Water Act.

4. **REDELGATION AUTHORITY.** This authority may not be redelegated.

5. **ADDITIONAL REFERENCES.** None.

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