The EPA Administrator, Gina McCarthy, signed the following final rule on November 15, 2016, and EPA is submitting it for publication in the *Federal Register* (FR). While we have taken steps to ensure the accuracy of this Internet version of the rule, it is not the official version of the rule for purposes of public comment. Please refer to the official version in a forthcoming FR publication, which will appear on the Government Printing Office's FDsys website (http://fdsys.gpo.gov/fdsys/search/home.action) and on Regulations.gov (http://www.regulations.gov) in Docket No. EPA-HQ-OW-2015-0174. Once the official version of this document is published in the FR, this version will be removed from the Internet and replaced with a link to the official version.

6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 131

[EPA-HQ-OW-2015-0174; FRL---OW]

RIN 2040-AF56

Revision of Certain Federal Water Quality Criteria Applicable to Washington

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: On September 14, 2015, the Environmental Protection Agency (EPA) proposed revisions to the federal Clean Water Act (CWA) human health criteria applicable to waters under the State of Washington's jurisdiction to ensure that the criteria are set at levels that will adequately protect Washington residents, including tribes with treaty-reserved rights, from exposure to toxic pollutants. EPA promulgated Washington's previous criteria for the protection of human health in 1992 as part of the National Toxics Rule (NTR) (amended in 1999 for Polychlorinated Biphenyls (PCBs)), using the Agency's recommended criteria values at the time.

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EPA derived those previously applicable criteria using a fish consumption rate (FCR) of 6.5 grams per day (g/day) based on national surveys. The best available data now demonstrate that fish consumers in Washington consume much more fish than 6.5 g/day. There are also new data and scientific information available to update the toxicity and exposure parameters used to calculate human health criteria. On August 1, 2016, the State of Washington adopted and submitted human health criteria for certain pollutants, reflecting some of these new data and information. Concurrent with this final rule, EPA is taking action under CWA 303(c) to approve in part, and disapprove in part, the human health criteria submitted by Washington. For those criteria that EPA disapproved, EPA is finalizing federal human health criteria in this final rule. EPA is not finalizing criteria in this final rule for those state-adopted criteria that EPA approved, or for certain criteria that EPA has determined involve scientific uncertainty, as explained below.

DATES: This final rule is effective on **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].**

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA-HQ-OW-2015-0174. All documents in the docket are listed on the http://www.regulations.gov web site. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available electronically through http://www.regulations.gov.

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FOR FURTHER INFORMATION CONTACT: Erica Fleisig, Office of Water, Standards and Health Protection Division (4305T), Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460; telephone number: (202) 566-1057; email address: fleisig.erica@epa.gov.

SUPPLEMENTARY INFORMATION: This final rule is organized as follows:

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I. General Information

A. Does this action apply to me?

Entities such as industries, stormwater management districts, or publicly owned treatment works (POTWs) that discharge pollutants to waters of the United States under the State of Washington's jurisdiction could be indirectly affected by this rulemaking, because federal water quality standards (WQS) promulgated by EPA are applicable to CWA regulatory programs, such as National Pollutant Discharge Elimination System (NPDES) permitting. Citizens concerned with water quality in Washington could also be interested in this rulemaking. Categories and entities that could potentially be affected include the following:

Category	Examples of potentially affected entities
Industry	Industries discharging pollutants to waters of the United States in Washington.
Municipalities	Publicly owned treatment works or other facilities discharging pollutants to waters of the United States in Washington.
Stormwater Management Districts	Entities responsible for managing stormwater runoff in the State of Washington.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities that could be indirectly affected by this action. Any parties or entities who depend upon or contribute to the water quality of Washington's waters could be indirectly affected by this rule. To determine whether your facility or activities could be indirectly affected by this action, you should carefully examine this rule. If you have questions regarding the applicability of this

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action to a particular entity, consult the person listed in the FOR FURTHER INFORMATION CONTACT section.

B. How did EPA develop this final rule?

In developing this final rule, EPA carefully considered the public comments and feedback received from interested parties. EPA originally provided a 60-day public comment period after publishing the proposed rule in the Federal Register on September 14, 2015.[1] On October 28, 2015, in response to stakeholder requests[2], EPA extended the public comment period for an additional 45 days.[3] In addition, EPA held two virtual public hearings on December 15th and 16th, 2015, to discuss the contents of the proposed rule and accept verbal public comments.

Over 60 organizations and individuals submitted comments on a range of issues. EPA also received over 400 letters from individuals associated with mass letter writing campaigns. Some comments addressed issues beyond the scope of the rulemaking, and thus EPA did not consider them in finalizing this rule. In each section of this preamble, EPA discusses certain public comments so that the public is aware of the Agency's position. For a full response to these

[1] See Revision of Certain Federal Water Quality Criteria Applicable to Washington: Proposed Rule, 80 FR 55063, September 14, 2015.
[2] EPA received requests from the Association of Washington Business – Washington State's Chamber of Commerce, Washington Public Ports Association (on behalf of the Association of Washington Cities and the Washington State Association of Counties), Western Wood Preservers Institute, ALCOA, American Forest and Paper Association, McFarland Cascade, Schnitzer Steel Industries, and Weyerhaeuser.
[3] See Extension of Public Comment Period for the Revision of Certain Federal Water Quality Criteria Applicable to Washington, 80 FR 65980, October 28, 2015.

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and all other comments, see EPA's Response to Comments document in the official public docket.

II. Background

A. Statutory and Regulatory Background

CWA section 101(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." These are commonly referred to as the "fishable/swimmable" goals of the CWA. EPA interprets "fishable" uses to include, at a minimum, designated uses providing for the protection of aquatic communities and human health related to consumption of fish and shellfish.[4]

CWA section 303(c) (33 U.S.C. 1313(c)) directs states to adopt WQS for their waters subject to the CWA. CWA section 303(c)(2)(A) and 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. 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." In addition, 40 CFR 131.10(b) provides that "[i]n designating uses of a water body and the appropriate criteria for

[4] USEPA. 2000. Memorandum #WQSP-00-03. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/sites/production/files/2015-01/documents/standards-shellfish.pdf.

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those uses, the state shall take into consideration the water quality standards of downstream waters and ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters."

States are required to review applicable WQS at least once every three years and, if appropriate, revise or adopt new standards (CWA section 303(c)(1)). Any new or revised WQS must be submitted to EPA for review and approval or disapproval (CWA section 303(c)(2)(A) and (c)(3)). If EPA disapproves a state's new or revised WQS, the CWA provides the state 90 days to adopt a revised WQS that meets CWA requirements, and if it fails to do so, EPA shall promptly propose and then within 90 days promulgate such standard unless EPA approves a state replacement WQS first (CWA section 303(c)(3) and (c)(4)(A)). CWA section 303(c)(4)(B) authorizes the Administrator to determine that a new or revised standard is needed to meet CWA requirements. Upon making such a determination, the CWA specifies that EPA shall promptly propose, and then within 90 days promulgate, any such new or revised standard unless prior to such promulgation, the state has adopted a revised or new WQS that EPA determines to be in accordance with the CWA.

Under CWA section 304(a), 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. In 2015, EPA updated its 304(a) recommended criteria for

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human health for 94 pollutants.[5] Where EPA has published recommended criteria, states should establish numeric water quality criteria based on 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)). In all cases 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) for which EPA has published 304(a) criteria, as necessary to support the states' designated uses.

In 1992, EPA promulgated the NTR at 40 CFR 131.36, establishing chemical-specific numeric criteria for 85 priority toxic pollutants for 14 states and territories (states), including Washington, that were not in compliance with the requirements of CWA section 303(c)(2)(B). When states covered by the NTR subsequently adopted their own criteria for toxic pollutants that EPA approved as consistent with the CWA and EPA's implementing regulations, EPA amended the NTR to remove those criteria for those states.

B. EPA's CWA 303(c) Action on Washington's Human Health Criteria

On September 14, 2015, EPA made a CWA 303(c)(4)(B) determination that new or revised WQS for the protection of human health in Washington were necessary to meet the

[5] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/wqc/human-health-water-quality-criteria.

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requirements of the CWA, and proposed revised human health criteria for the state (see 80 FR 55063). At that time, Washington had not yet adopted its own criteria for the protection of human health.[6] On August 1, 2016, Washington adopted and submitted statewide human health criteria and new and revised implementation provisions. Concurrent with this final rule, EPA approved 45 and disapproved 143 of Washington's human health criteria under CWA 303(c). EPA is finalizing 144 human health criteria in this rule in accordance with CWA section 303(c)(3) and (c)(4) requirements.[7] After the effective date of this final rule, these federal criteria will be in effect for CWA purposes along with the human health criteria that Washington adopted and EPA approved.

Several commenters provided comments on the timing of EPA's rule, and the relationship between EPA's federal rulemaking and the state rulemaking process. These comments are now, for the most part, mooted by EPA's finalization of its federal rule and action on the state's submittal. For additional responses to specific comments, see EPA's Response to Comment document in the docket for this rule.

C. General Recommended Approach for Deriving Human Health Criteria

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[6] Washington adopted criteria for the protection of aquatic life from toxic pollutants at WAC 173-201A-240.

[7] EPA is finalizing a different number of human health criteria (144) than it is disapproving (143) in Washington's 2016 submittal. Washington did not adopt organism-only criteria for methylmercury or water-plus-organism and organism-only criteria for bis(2-chloro-1-methylethyl) ether. These are priority pollutants listed pursuant to CWA section 307(a)(1) for which EPA has 304(a) recommended criteria, and, as such, CWA section 303(c)(2)(B) requires that states adopt numeric criteria for these pollutants, as necessary to support the states' designated uses. Therefore, EPA is including these three criteria in this final rule for Washington. This final rule, however, does not include revised water-plus-organism and organism-only criteria for arsenic, as explained below in section III.A, even though EPA is disapproving the arsenic criteria in Washington's submittal.

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Human health criteria are designed to minimize the risk of adverse cancer and non-cancer effects occurring from lifetime exposure to pollutants through the ingestion of drinking water and consumption of fish and shellfish obtained from inland and nearshore waters (by nearshore waters, EPA refers to waters out to three miles from the coast). EPA's practice is to establish a human health 304(a) recommended criterion for both drinking water and consumption of fish and shellfish from inland and nearshore waters combined, and a separate human health criterion based only on ingestion of fish and shellfish from inland and nearshore waters. This latter criterion applies in cases where the designated uses of a waterbody include supporting fish and shellfish for human consumption but not drinking water supply sources (e.g., in non-potable estuarine waters).

The criteria are based on two types of biological endpoints: (1) carcinogenicity and (2) systemic toxicity (i.e., all adverse effects other than cancer). EPA takes an integrated approach and considers both cancer and non-cancer effects when deriving human health criteria. Where sufficient data are available, EPA derives criteria using both carcinogenic and non-carcinogenic toxicity endpoints and recommends the lower value. Human health criteria for carcinogenic effects are calculated using the following input parameters: cancer slope factor (CSF), cancer risk level, body weight, drinking water intake rate, fish consumption rate, and a bioaccumulation factor(s). Human health criteria for non-carcinogenic and nonlinear carcinogenic effects are calculated using a reference dose (RfD) in place of a CSF and cancer risk level, and a relative source contribution (RSC) factor, which is intended to ensure that an individual's total exposure

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to a given pollutant from all sources does not exceed the RfD. Each of these inputs is discussed in more detail below and in EPA's 2000 Human Health Methodology (hereafter referred to as EPA's "2000 Methodology").[8]

a. Cancer Risk Level

EPA's 304(a) national recommended human health criteria are typically based on the assumption that carcinogenicity is a "non-threshold phenomenon," which means that there are no "no-effect" levels, because even extremely small doses are assumed to cause a finite increase in the incidence of cancer. Therefore, EPA calculates 304(a) human health criteria for carcinogenic effects as pollutant concentrations corresponding to lifetime increases in the risk of developing cancer.[9] EPA calculates its 304(a) human health criteria values at a 10^{-6} (one in one million) cancer risk level and recommends cancer risk levels of 10^{-6} or 10^{-5} (one in one hundred thousand) for the general population.[10] EPA notes that states and authorized tribes can also choose a more stringent risk level, such as 10^{-7} (one in ten million), when deriving human health criteria.

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[8] USEPA. 2000. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-822-B-00-004. https://www.epa.gov/wqc/human-health-water-quality-criteria.

[9] As noted above, EPA recommends the criterion derived for non-carcinogenic effects if it is more protective (lower) than that derived for carcinogenic effects.

[10] EPA's 2000 Methodology also states:
"Criteria based on a 10^{-5} risk level are acceptable for the general population as long as states and authorized tribes ensure that the risk to more highly exposed subgroups (sport fishers or subsistence fishers) does not exceed the 10^{-4} level." Since EPA is establishing final criteria to protect a target general population of tribes with reserved subsistence fishing rights in Washington waters, the applicable EPA-recommended cancer risk levels would relate to that target general population, as opposed to the general population of Washington residents overall. See section III for additional discussion.

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If the pollutant is not considered to have the potential for causing cancer in humans (i.e., systemic toxicants), EPA assumes that the pollutant has a threshold (the RfD) below which a physiological mechanism exists to avoid or overcome the adverse effects of the pollutant.

b. Cancer Slope Factor and Reference Dose

A dose-response assessment is required to understand the quantitative relationships between exposure to a pollutant and the onset of human health effects. EPA evaluates dose-response relationships derived from animal toxicity and human epidemiological studies to derive dose-response metrics. For carcinogenic toxicological effects, EPA uses an oral CSF to derive human health criteria. The oral CSF is an upper bound, approximating a 95 percent confidence limit, on the increased cancer risk from a lifetime oral exposure to a stressor. For non-carcinogenic effects, EPA uses the RfD to calculate human health criteria. A RfD is an estimate of a daily oral exposure of an individual to a substance that is likely to be without an appreciable risk of deleterious effects during a lifetime. A RfD is typically derived from a laboratory animal dosing study in which a no-observed-adverse-effect level (NOAEL), lowest-observed-adverse-effect level (LOAEL), or benchmark dose can be obtained. Uncertainty factors are applied to reflect the limitations of the data. EPA's Integrated Risk Information System (IRIS)[11] was the primary source of toxicity values (i.e., RfD and CSF) for EPA's 2015 updated 304(a) human

[11] USEPA. Integrated Risk Information System (IRIS). U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C. www.epa.gov/iris.

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health criteria.[12] For some pollutants, however, more recent peer-reviewed and publicly available toxicological data were available from other EPA program offices (e.g., Office of Pesticide Programs, Office of Water, Office of Land and Emergency Management), other national and international programs, and state programs.

c. Exposure Assumptions

EPA's latest 304(a) national human health criteria use a default drinking water intake rate of 2.4 liters per day (L/day) and default rate of 22 g/day for consumption of fish and shellfish from inland and nearshore waters, multiplied by pollutant-specific bioaccumulation factors (BAFs) to account for the amount of the pollutant in the edible portions of the ingested species. EPA's 2000 Methodology for deriving human health criteria emphasizes using, when possible, measured or estimated BAFs, which account for chemical accumulation in aquatic organisms from all potential exposure routes.[13] In the 2015 national 304(a) human health criteria update, EPA primarily used field-measured BAFs, and laboratory-measured bioconcentration factors (BCFs) with applicable food chain multipliers available from peer-reviewed, publicly available databases, to develop national BAFs for three trophic levels of fish. If this information was not

[12] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/wqc/human-health-water-quality-criteria.

[13] USEPA. 2000. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-822-B-00-004. https://www.epa.gov/wqc/human-health-water-quality-criteria.

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available, EPA selected octanol-water partition coefficients (K_{ow} values) from peer-reviewed sources for use in calculating national BAFs.[14]

EPA's national default drinking water intake rate of 2.4 L/day represents the per capita estimate of combined direct and indirect community water ingestion at the 90th percentile for adults ages 21 and older.[15] EPA's national default FCR of 22 g/day represents the 90th percentile consumption rate of fish and shellfish from inland and nearshore waters for the U.S. adult population 21 years of age and older, based on National Health and Nutrition Examination Survey (NHANES) data from 2003 to 2010.[16,17] EPA calculates human health criteria using a default body weight of 80 kilograms (kg), the average weight of a U.S. adult age 21 and older, based on NHANES data from 1999 to 2006.

Although EPA uses these default values to calculate national 304(a) recommended human health criteria, EPA's 2000 Methodology notes a preference for the use of local data to calculate human health criteria (e.g., locally derived FCRs, drinking water intake rates and body

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[14] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/wqc/human-health-water-quality-criteria.

[15] USEPA. 2011. EPA Exposure Factors Handbook. 2011 edition (EPA 600/R-090/052F). http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252.

[16] USEPA. 2014. Estimated Fish Consumption Rates for the U.S. Population and Selected Subpopulations (NHANES 2003-2010). United States Environmental Protection Agency, Washington, D.C. EPA 820-R-14-002.

[17] EPA's national FCR is based on the total rate of consumption of fish and shellfish from inland and nearshore waters (including fish and shellfish from local, commercial, aquaculture, interstate, and international sources). This is consistent with a principle that each state does its share to protect people who consume fish and shellfish that originate from multiple jurisdictions. USEPA. January 2013. *Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions*. https://www.epa.gov/wqc/human-health-ambient-water-quality-criteria-and-fish-consumption-rates-frequently-asked.

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weights, and waterbody-specific bioaccumulation rates) over national default values, where data are sufficient to do so, to better represent local conditions.[18] It is also important, where sufficient data are available, to select a FCR that reflects consumption that is not suppressed by concerns about the safety of available fish.[19,20] Deriving human health criteria using an unsuppressed FCR furthers the restoration goals of the CWA and ensures protection of human health-related designated uses (as pollutant levels decrease, fish habitats are restored, and fish availability increases over time). See section III for additional discussion regarding use of an unsuppressed FCR to protect a subsistence or sustenance fishing use, especially where the subsistence or sustenance use is based in whole or in part on tribal treaty or other reserved fishing rights.[21]

d. Relative Source Contribution

When deriving human health criteria for non-carcinogens and nonlinear carcinogens, EPA recommends including a RSC factor to account for sources of exposure other than drinking water and fish and shellfish from inland and nearshore waters, so that the pollutant effect threshold (i.e., RfD) is not apportioned to drinking water and fish consumption alone. The rationale for this approach is that for pollutants exhibiting threshold effects, the objective of the

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[18] USEPA. 2000. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-822-B-00-004. https://www.epa.gov/wqc/human-health-water-quality-criteria.

[19] USEPA. January 2013. *Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions*. https://www.epa.gov/wqc/human-health-ambient-water-quality-criteria-and-fish-consumption-rates-frequently-asked.

[20] National Environmental Justice Advisory Council, *Fish Consumption and Environmental Justice*, p.44 (2002) *available at* https://www.epa.gov/sites/production/files/2015-02/documents/fish-consump-report_1102.pdf.

[21] The term "subsistence" is coterminous with "sustenance" in this context. Hereafter, the document uses the term "subsistence."

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human health criteria is to ensure that an individual's total exposure from all sources does not exceed that threshold level. These other exposures include exposure to a particular pollutant from ocean fish and shellfish consumption (which is not included in EPA's default national FCR), non-fish food consumption (e.g., fruits, vegetables, grains, meats, poultry), dermal exposure, and inhalation exposure. EPA's guidance includes a procedure for determining an appropriate RSC value ranging from 0.2 to 0.8 for a given pollutant.

III. Derivation of Human Health Criteria for Washington

A. Scope of Pollutants and Waters Covered by this Final Rule

In 1992, EPA did not establish human health criteria in the NTR for some priority toxic pollutants because, as stated in the preamble to the final rule at 57 FR 60848, December 22, 1992, EPA had no 304(a) recommendations for those pollutants at the time. EPA now has 304(a) recommendations for 99 priority toxic pollutants listed pursuant to CWA section 307(a)(1) (85 for which EPA established criteria in the NTR, plus 14 additional pollutants).

After consideration of all comments received on EPA's proposed rule, and EPA's CWA 303(c) action on Washington's submittal, EPA is finalizing 144 new and revised Washington-specific criteria for priority toxic pollutants in this rule. For arsenic, dioxin and thallium, EPA is not revising Washington's existing criteria from the NTR at this time, as explained below and in EPA's Response to Comments document in the docket for the final rule. For those priority pollutants for which EPA does not have 304(a) national recommended criteria, and are therefore not included in Washington's submittal or this final rule, EPA expects that Washington will

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continue to apply its existing narrative toxics criterion in the state's WQS at WAC 173-201A-260(2)(a).

Several commenters raised concerns about the scientific defensibility of EPA's proposed human health criteria for arsenic, and one commenter raised similar concerns about EPA's proposed criteria for 2,3,7,8-TCDD (dioxin). Additionally, after EPA proposed revised human health criteria for thallium in Washington, EPA further evaluated the scientific uncertainty around the appropriate RfD for thallium. EPA carefully considered all of these comments and information regarding these three pollutants, along with the comments that articulated it is important for Washington to have protective numeric criteria in place for priority toxic pollutants such as arsenic and dioxin. Given the scientific uncertainty regarding aspects of the science upon which the proposed human health criteria for arsenic, dioxin, and thallium were based, EPA is withdrawing its proposal of revised criteria for these three pollutants at this time and leaving the existing criteria from the NTR in effect for CWA purposes.[22] EPA did not update the 304(a) national recommended criteria for these three pollutants in 2015. As noted earlier, IRIS was the primary source of toxicity values (i.e., RfD and CSF) for EPA's 2015 updated 304(a) human health criteria. For thallium, EPA's IRIS database does not currently contain an estimate of thallium's toxicity (i.e., a RfD).[23] For dioxin, IRIS does not currently contain a measure of

[22] EPA is moving 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.
[23] http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showQuickView&substance_nmbr=1012.

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dioxin's cancer-causing ability (i.e., a CSF).[24] Without such values, EPA has 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. 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). EPA 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 rule revises the criteria that EPA promulgated for Washington in the NTR (with the exception of criteria for arsenic, dioxin, and thallium, and criteria that EPA approved in Washington's August 1, 2016 submittal), and establishes new human health criteria for 8 additional chemicals for which EPA now has 304(a) recommended criteria (and for which EPA did not approve Washington's submitted criteria): Selenium, Zinc, 1,2-Trans-Dichloroethylene, Acenaphthene, Butylbenzyl Phthalate, 2-Chloronaphthalene, 1,1,1-Trichloroethane, and 1,2,4-Trichlorobenzene. In 2001, EPA replaced its 304(a) recommended human health criteria for total mercury with a fish tissue-based human health criterion for methylmercury.[25] Washington did

[24] http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showQuickView&substance_nmbr=1024.
[25] USEPA. 2001. Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-823-R-01-001. https://www.epa.gov/wqc/guidance-implementing-january-2001-methylmercury-water-quality-criterion.

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not include human health criteria for mercury or methylmercury in its August 1, 2016 submittal. Therefore, with this final rule, EPA replaces the criteria for total mercury that EPA promulgated for Washington in the NTR with a methylmercury fish tissue criterion, based on EPA's 2001 304(a) recommendation but adjusted to incorporate the 175 g/day FCR that EPA used to derive revised human health criteria in Washington, as well as EPA's 2015 updated national default body weight of 80 kg.

A few commenters expressed concern that Washington would not have the data or implementation guidance to properly implement a fish tissue criterion for methylmercury, and requested that EPA leave the NTR total mercury criteria in effect in Washington. The fish tissue methylmercury criterion reflects EPA's 2000 Methodology, the best available science, and supersedes all previous 304(a) human health mercury criteria recommendations published by EPA (except for the waters of the Great Lakes System), including the 304(a) recommended criteria that served as the basis for the total mercury criteria that EPA promulgated for Washington in the NTR. EPA recommends a fish tissue water quality criterion for methylmercury for many reasons. A fish tissue water quality criterion integrates spatial and temporal complexity that occurs in aquatic systems and affects methylmercury bioaccumulation. For this pollutant, a fish tissue criterion is more closely tied to the goal of protecting human health because it is based directly on the dominant human exposure route for methylmercury in the U.S., which is consumption of fish and shellfish. The concentration of methylmercury is also generally easier to quantify in fish tissue than in water and is less variable in fish and shellfish

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tissue over the time periods in which WQS are typically implemented in water quality-based controls, such as NPDES permits. Finally, fish consumption advisories for mercury are also based on the amount of methylmercury in fish tissue.[26] While the purpose of a fish advisory is different from the purpose of a water quality criterion, it will be helpful to the public to have water quality criteria and fish consumption advisories for methylmercury expressed using the same terms. In response to comments regarding implementation of the methylmercury criterion, in 2010, EPA published the comprehensive *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion* (EPA 823-R-10-001), to aid states in implementing the fish tissue-based methylmercury water quality criterion. EPA is confident that Washington will be able to implement the fish tissue criterion using the information contained in that document, and EPA remains available to offer assistance in doing so. Thus there is no need or requirement to leave the NTR total mercury criteria in place in Washington.

This final rule does not change or supersede any criteria that EPA previously promulgated for other states in the NTR, nor does it change any other elements of the NTR such as EPA's original basis for promulgation. For clarity in organization, EPA is withdrawing Washington from the NTR at 40 CFR 131.36 and incorporating the Washington-specific criteria

[26] While both water quality criteria and fish consumption advisories are designed ultimately to protect human health, they represent very different values and goals. Water quality criteria express or establish a desired condition and must protect the designated use, such as subsistence fishing. Fish consumption advisories start with existing levels of fish contamination resulting from impaired water quality, and provide advice to populations consuming such fish on limiting levels of consumption in order to reduce risk from contamination.

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in this rule (as well as the existing NTR criteria for arsenic, dioxin and thallium) into 40 CFR 131.45 so there is a single comprehensive set of federally promulgated criteria for Washington.

This rule applies to waters under the State of Washington's jurisdiction, and not to waters within Indian country,[27] unless otherwise specified in federal law. Some waters located within Indian country already have CWA-effective human health criteria, while others do not.[28] Several tribes are working with EPA to either revise their existing CWA-effective WQS, or obtain treatment in a similar manner as a state (TAS) status in order to adopt CWA-effective WQS in the near future. EPA will continue to work closely with tribes in Washington to ensure that they adopt human health criteria that are scientifically supported and protective of designated uses, in accordance with the CWA and EPA's regulations. In addition, on September 29, 2016, EPA published an Advanced Notice of Proposed Rulemaking in the Federal Register that seeks input on an approach that involves EPA promulgating baseline WQS for reservations that currently have no CWA-effective WQS, including such reservations within the State of Washington.[29]

B. Washington's Designated Uses and Tribal Reserved Fishing Rights

a. EPA's Consideration of Tribal Treaty Rights

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[27] See 18 U.S.C. 1151 for the definition of Indian country.

[28] Indian country waters with CWA-effective WQS include those where (a) EPA has authorized a tribe to adopt WQS under the CWA for its reservation and the tribe has adopted standards that EPA has approved, and (b) EPA has promulgated federal WQS.

[29] For more information, see: https://www.epa.gov/wqs-tech/advance-notice-proposed-rulemaking-federal-baseline-water-quality-standards-indian.

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Under the Supremacy Clause of the U.S. Constitution, federal treaties have the same legal force as federal statutes.[30] As such, the provisions of federal statutes should generally be read in harmony with treaties where they both apply. In certain instances, statutes may contain provisions indicating that they *must* be read in harmony with treaties. Such is the case with the CWA, which provides that the Act "shall not be construed as . . . affecting or impairing the provisions of any treaty of the United States."[31]

In determining whether WQS satisfy the CWA and EPA's regulations, and when setting criteria for the protection of human health, it is necessary to consider other applicable laws, such as federal treaties (e.g., U.S. Treaties with Indians). While treaties do not expand EPA's authority, they are binding on the federal government. As a result, EPA has an obligation to ensure that its actions do not conflict with tribal treaty rights.[32] For the foregoing reasons, and as further explained below, it is therefore necessary and appropriate to consider tribal treaties to

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[30] U.S. Const. art. IV, § 2: The "Constitution . . . of the United States . . . and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding."
[31] CWA Section 511, 33 U.S.C. § 1371.
[32] U.S. Const. art. IV, § 2; *see United States v. Forty-Three Gallons of Whiskey*, 93 U.S. 188, 196 (1833) (recognizing that "the Constitution declares a treaty to be the supreme law of the land," and that "a treaty is to be regarded . . . as equivalent to an act of the legislature") and *Worcester v. Georgia,* 31 U.S. 515, 594 (1832) ("So long as ... treaties exist, having been formed within the sphere of the federal powers, they must be respected and enforced by the appropriate organs of the federal government."). *See also* EPA policies on considering treaty rights: *Working Effectively With Tribal Governments: Resource Guide* at pp. 49-52, 53 (August 1998) (explaining the key principles underlying the application of Indian treaty rights, and noting that "[f]ederal, state, and local agencies need to refrain from taking actions that are not consistent with tribal rights wherever they exist"); *Commemorating the 30th Anniversary of the EPA's Indian Policy*, Memorandum from Gina McCarthy to All EPA Employees, p. 1 (December 1, 2014) (reiterating that "EPA must ensure that its actions do not conflict with tribal treaty rights" and stating that "EPA programs should be implemented to enhance the protection of tribal treaty rights and treaty-covered resources when we have the discretion to do so"); *EPA Policy for the Administration of Environmental Programs on Indian Reservations* (November 8, 1984) (known as "EPA 1984 Indian Policy").

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ensure that EPA's actions under the CWA are in harmony with such treaties. See also EPA's Response to Comment document in the docket for this rule.

b. Treaty-Reserved Subsistence Fishing Rights in Washington

The majority of waters under the jurisdiction of the State of Washington are subject to federal treaties with tribes.[33] There are eight Stevens-Palmer Treaties relevant to the State of Washington through which 24 tribes reserved for themselves identical or nearly identical fishing rights within the boundaries of present-day Washington; specifically, the treaty-reserved "right of taking fish at usual and accustomed places, in common with all citizens of the Territory."[34] The right to take fish at usual and accustomed places extends to lands formerly ceded by the tribes to the U.S. as described in the treaties, as well as to all places beyond the boundaries of the ceded territories that tribal members regularly used at treaty time.[35]

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[33] *See* http://wdfw.wa.gov/hunting/tribal/treaty_history.html.

[34] *See e.g.* Treaty with the Yakima art. 3, June 9, 1855, 12 Stat. 951. In *United States v. Winans*, 198 U.S. 371 (1905), the Supreme Court adopted a "reservation of rights" approach in interpreting the Stevens Treaty with the Yakima Nation: "the treaty was not a grant of rights to the Indians, but a grant of rights from them—a reservation of those not granted." *Id.* at 381. In contrast, "off reservation fishing by other citizens and residents of the state is not a right but merely a privilege which may be granted, limited or withdrawn by the state as the interests of the state or the exercise of treaty fishing rights may require." *U.S. v Washington*, 384 F. Supp. 312, 332 (W.D. Wash. 1974) *aff'd* 520 F.2d 676 (9th Cir. 1975), *cert. denied* 423 U.S. 1086 (1976).

[35] *See Seufert Bros. Co. v. U.S.*, 249 U.S. 194, 199 (1919). In *U.S. v Washington*, the court stated, citing *Seufert Bros. Co.*, "every fishing location where members of a tribe customarily fished from time to time at and before treaty times, however distant from the then usual habitat of the tribe, and whether or not other tribes then also fished in the same waters, is a usual and accustomed ground or station at which the treaty tribe reserved, and its members presently have, the right to take fish." 384 F. Supp. at 332.

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The parties to the treaties all recognized the importance of the fishing right for the tribes' subsistence, ceremonial, as well as commercial purposes.[36] In *U.S. v Washington*, the district court made detailed findings of facts regarding the reserved fishing right, including the importance of subsistence fishing to the treaty tribes:

> At the treaty negotiations, a primary concern of the tribes, whose way of life was so heavily dependent upon harvesting anadromous fish, was that they have freedom to move about to gather food, particularly salmon, . . . at their usual and accustomed fishing places. . . .. Subsequent to the execution of the treaties and in reliance thereon, the members of the [treaty tribes with reserved fishing rights in Washington] have continued to fish for subsistence, sport, and commercial purposes at their usual and accustomed places. Such fishing provided and still provides an important part of their livelihood, subsistence and cultural identity. The Indian cultural identification with fishing is primarily dietary, related

[36] For a thorough discussion on the treaty negotiation and execution and meaning of the reserved fishing right, *see e.g.*, *U.S. v Washington*, 384 F. Supp. at 348-359 (containing finding of facts regarding, *inter alia*, treaty status, pre-treaty role of fishing among northwest Indians, treaty background, negotiation and execution of the treaties, and post-treaty Indian fishing); *see also id.* at 340 ("The right to fish for all species available in the waters from which, for so many ages, their ancestors derived most of their subsistence is the single most highly cherished interest and concern of the present members of plaintiff tribes, with rare exceptions even among tribal members who personally do not fish or derive therefrom any substantial amount of their subsistence."); *id.* at 343 ("The evidence shows beyond doubt that at treaty time the opportunity to take fish for personal subsistence and religious ceremonies was the single matter of utmost concern to all treaty tribes and their members."); and *U.S. v. Washington,* No. 13-35474, 2016 U.S. App. LEXIS 11709, at *29 (9th Cir. June 27, 2016) ("The Indians reasonably understood Governor Stevens to promise not only that they would have access to their usual and accustomed fishing places, but also that there would be fish sufficient to sustain them.").

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to the subsistence fishery, and secondarily associated with religious ceremonies and commercial fishing.[37]

Relevant case law, including Supreme Court precedents, unequivocally confirms that the treaty-reserved right to take fish includes the right to take fish for subsistence purposes.[38] Historical and current evidence of tribal members' exercise of the treaty-reserved subsistence fishing right can be found in heritage FCR reports and contemporary FCR surveys (for tables of relevant FCRs, see EPA's Response to Comment document in the docket for this rule).

As explained above, the Stevens-Palmer Treaties provide tribes the right to exercise subsistence fishing practices on waters throughout the State of Washington. EPA concludes that the purpose for which tribes reserved such fishing rights through treaties with the U.S. has important implications for water quality regulation under the CWA. Fundamentally, the tribes' ability to take fish for their subsistence purposes under the treaties would be substantially affected or impaired if it were not supported by water quality sufficient under the CWA to ensure that tribal members can safely eat the fish for their own subsistence.

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[37] *U.S. v Washington*, 384 F. Supp. at 355-358 (internal citations to exhibits omitted).

[38] *See e.g.*, *Washington v. Washington State Commercial Passenger Fishing Vessel Ass'n*, 443 U.S. 658, 678-679 (1979) (Because the Indians had always exercised the right to meet their subsistence and commercial needs by taking fish from treaty area waters, they would be unlikely to perceive a "reservation" of that right as merely the chance, shared with millions of other citizens, occasionally to dip their nets into the territorial waters. Moreover, the phrasing of the clause quite clearly avoids placing each individual Indian on an equal footing with each individual citizen of the State."); *U.S. v. Washington*, 2016 U.S. App. LEXIS 11709 at *28 (Observing that to the Tribes, the Stevens Treaties' "principal purpose was to secure a means of supporting themselves once the Treaties took effect," and to that end, "[s]almon were a central concern.").

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Many areas where treaty-reserved fishing rights are exercised cannot be directly protected or regulated by tribal governments to ensure adequate water quality, and therefore the responsibility falls to the federal government (and the states) to ensure their protection. It is therefore appropriate and necessary for EPA (and states) to consider the tribal reserved rights within the framework of the CWA, to ensure water quality protection for treaty-reserved subsistence fishing rights. EPA's consideration of treaty-reserved fishing rights within the framework of the CWA leads to the conclusion, as described below, that the human health fishing uses for waters in Washington include subsistence fishing, as informed by the tribes' legally protected right to continue to take fish for subsistence purposes.[39]

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[39] While EPA's action is based on harmonizing the requirements of the CWA with the terms of the treaty-reserved subsistence fishing right, the action also is consistent with federal Indian law principles addressing subsidiary treaty rights. A written legal opinion from the Solicitor of the U.S. Department of Interior (DOI) to EPA analyzed whether tribal reserved fishing rights include subsidiary rights to sufficient water quality. Letter from Hilary C. Tompkins, Solicitor, DOI, to Avi Garbow, General Counsel, EPA, regarding Maine's WQS and Tribal Fishing Rights of Maine Tribes (January 30, 2015). Although DOI's legal opinion primarily involved an analysis of fishing rights of tribes in Maine in connection with EPA's February 2, 2015 decision to disapprove WQS applied to waters of Indian Lands in Maine, its discussion of tribal fishing rights and water quality has relevance to tribes with reserved fishing rights in Washington. DOI's legal opinion identified several court decisions, including Supreme Court decisions interpreting the reserved fishing right in the Stevens Treaties, which have held that fishing rights for tribes encompass subsidiary rights that are necessary to render those rights meaningful. In *Washington v. Wash. State Commercial Passenger Fishing Vessel Ass'n*, the United States Supreme Court held that tribes with reserved fishing rights are entitled to something more tangible than "merely the chance . . . occasionally to dip their nets into the territorial seas." 443 U.S. 658, 679 (1979). Consistent with this reasoning, courts have held that treaty-reserved fishing rights entail the right to access fishing grounds and the right to water quantity sufficient to support fish habitat. *See e.g.*, *United States v. Winans*, 198 U.S. 371, 384 (1905) (tribe must be allowed to cross private property to access traditional fishing ground); *Seufert Bros. Co. v. United States*, 249 U.S. 194 (1919) (tribe entitled to cross over and temporarily use any sites which they were accustomed to using at treaty time, including sites outside their ceded territories); *United States v. Adair*, 723 F .2d 1394, 1409-10 (9th Cir. 1983) (holding that the tribe's fishing right implicitly reserved sufficient waters to "secure to the Tribe a continuation of its traditional . . . fishing lifestyle"; *Colville Confederated Tribes v. Walton*, 647 F.2d 42, 47-48 (9th Cir. 1981) (implying reservation of water to preserve tribe's replacement fishing grounds). Consistent with these precedents, in June 2016 the U.S. Court of Appeals for the Ninth Circuit affirmed the district court's finding that barrier culverts constructed by the State of Washington obstructing fish passage were in violation of tribal fishing rights set forth in the Stevens Treaties, noting that "the

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c. Use(s) of the Water(s) in Question

Consistent with EPA's September 14, 2015 proposed rule for Washington, in order to effectuate and harmonize treaty-reserved fishing rights with the CWA, EPA has determined that such rights must be appropriately considered when determining which criteria are sufficient to adequately protect Washington's designated uses. Looking at the treaty-reserved subsistence fishing right within the CWA water quality framework, the first step is to examine the use of the water(s) in question. The CWA generally assigns to a state the responsibility of determining the designated uses of its waters (subject to certain restrictions at 40 CFR 131.10),[40] and in Washington the state's designated uses include fish and shellfish harvesting.[41] As explained above, through treaties, tribes reserved specific fishing rights in Washington's waters, including the right to take fish from such waters for their subsistence. In order to effectuate these rights in harmony with the CWA, EPA has interpreted the state's EPA-approved designated fish and shellfish harvesting use to include or encompass a subsistence fishing component based on, and consistent with, the rights reserved to the tribes through the treaties. As discussed in more detail below, EPA construes the CWA to require that, when establishing WQS for these waters, the

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Tribes' right of access to their usual and accustomed fishing places would be worthless without harvestable fish." *United States v. Washington*, 2016 U.S. App. LEXIS 11709 at *31. The court also acknowledged that the fishing clause of the Stevens Treaties could give rise to other environmental obligations, but that those would need to be addressed on a case-by-case basis depending on the precise nature of the action. *Id.* at *18-19. Consistent with this body of case law, DOI's legal opinion concludes that "fundamental, longstanding tenets of federal Indian law support the interpretation of tribal fishing rights to include the right to sufficient water quality to effectuate the fishing right." DOI Letter at 10.

[40] 33 U.S.C. §§ 1251(a)(2), 1313(c)(2)(A).

[41] See WAC 173–201A–600 and WAC 173–201A–610.

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tribal members must be considered the target general population for the purposes of setting risk levels to protect the subsistence fishing use.

d. Target General Population for Deriving Criteria Protective of the Use(s)

Developing criteria to protect the fish and shellfish harvesting use, which includes subsistence fishing as informed by reserved fishing rights, necessarily involves identifying tribal members with reserved fishing rights as the target population for protection. EPA's conclusion to identify tribes as the target population is based on EPA's CWA implementing regulations requiring criteria to support the most sensitive use (i.e., subsistence fishing) and EPA's 2000 Methodology recommendation that priority be given to identifying and protecting highly exposed populations. Further, in order to derive water quality criteria sufficient under the CWA to ensure that the tribes' treaty-reserved right to take fish for subsistence purposes is not substantially affected or impaired, it is reasonable and appropriate to identify tribes as the target *general* population for protection, rather than a subpopulation, and apply the 2000 Methodology's recommendations on exposure for the general population to the tribal target population.

Per EPA's regulations at 40 CFR 131.11(a)(1), water quality criteria must contain sufficient parameters or constituents to protect the designated use, and for waters with multiple uses, the criteria must support the most sensitive use. In the case of Washington's human health-related uses, the most sensitive use is fish and shellfish harvesting, which, as explained above, EPA has interpreted to include or encompass a subsistence fishing component based on, and

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consistent with, the rights reserved to the tribes through the treaties. Developing water quality criteria to protect the subsistence fishing component of the fish or shellfish harvesting use necessarily involves identifying the population exercising that use.

EPA's decision to identify tribes as the target population is further supported by EPA guidance for developing water quality criteria to protect human health. As explained in EPA's 2000 Methodology, the choice of the particular population to protect is an important decision to make when setting human health criteria.[42] EPA recommends that states provide adequate protection from adverse health effects to the general population, as well as to highly exposed populations, such as recreational and subsistence fishers, two distinct groups with FCRs that may be greater than the general population.[43] In fact, EPA's 2000 Methodology recommends considering how to protect both susceptible and highly exposed populations when setting criteria:

> EPA recommends that priority be given to identifying and adequately protecting the most highly exposed population. Thus, if the State or Tribe determines that a highly exposed population is at greater risk and would not be adequately protected by criteria based on the general population, and by the national 304(a) criteria in

[42] EPA's 2000 Methodology, 2-1.
[43] *Id.* at 2-2.

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particular, EPA recommends that the State or Tribe adopt more stringent criteria using alternative exposure assumptions.[44]

Therefore, consistent with the guidance, EPA identifies the tribal population as the target population for protection and the subsistence fishing use must be the focus of the risk assessment supporting water quality criteria to adequately protect that use. Deriving criteria protective of the tribal target population necessarily involves determining the appropriate inputs for calculating protective criteria for tribal subsistence fishers, such as the FCR and cancer risk level.

EPA's approach in the 2000 Methodology, and its approach used for deriving national 304(a) recommended criteria, is for human health water quality criteria to provide a high level of protection for the general population (for example, FCRs designed to represent "the general population of fish consumers," or a cancer risk level that "reflects an appropriate risk for the general population"), while recognizing that more highly exposed "subpopulations" may face greater levels of risk.[45] The 2000 Methodology does not, however, speak to or envision the unique situation of setting WQS that cover areas where tribes have treaty-reserved rights to practice subsistence fishing.[46] Nevertheless, it is possible to apply the general principles outlined in the 2000 Methodology to this situation, as informed by the treaties.

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[44] EPA's 2000 Methodology, 2-1 – 2. *See also* EPA's 2000 Methodology, 4-17 ("When choosing exposure factor values to include in the derivation of a criterion for a given pollutant, EPA recommends considering values that are relevant to population(s) that is (are) most susceptible to that pollutant. In addition, highly exposed populations should be considered when setting criteria.").

[45] *See* EPA's 2000 Methodology, 2-6 – 7, 4-24 – 25.

[46] In response to comments on EPA's 1998 draft Human Health Methodology revisions, the Agency responded: "As stated in the 1998 draft Methodology revisions, 'risk levels and criteria need to be protective of tribal rights under

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In light of the presence of the treaty-reserved fishing rights in Washington, interpreted by the U.S. Supreme Court to encompass, among other things, subsistence fishing, and EPA's interpretation of Washington's fish and shellfish harvesting use to include subsistence fishing, it is reasonable and appropriate to require that tribes with such rights be considered as the target general population for deriving criteria protective of the use rather than a sensitive subpopulation within the overall population of Washington. Treating tribes as the target general population will help derive water quality criteria sufficient under the CWA to ensure that the tribes' treaty-reserved right to take fish for subsistence purposes is not substantially affected or impaired. Therefore, the 2000 Methodology's recommendations on exposure for the target general population can be applied accordingly. EPA's conclusion to treat tribes as the target general population, as opposed to a subpopulation, is further supported by relevant case law interpreting the treaty-reserved fishing rights applicable in Washington; specifically the phrase "in common with all citizens of the territory."

Treating tribes as the target population instead of a sensitive subpopulation also impacts another important input parameter used to derive human health criteria, the cancer risk level. For carcinogenic pollutants, EPA's 2000 Methodology recommends that states protect the general population to a level of incremental cancer risk no greater than one in one hundred thousand to

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federal law (*e.g.*, fishing, hunting, or gathering rights) that are related to water quality.' We believe the best way to ensure that Tribal treaty and other rights under Federal law are met, consistent with the Federal trust responsibility, is to address these issues at the time EPA reviews water quality standards submissions." (See 65 FR 66444, 66457 November 3, 2000).

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one in one million (1×10^{-5} to 10^{-6}). For over 20 years, Washington has used 10^{-6} as the level of risk that must be used to establish human health criteria for carcinogenic pollutants. EPA's 2000 Methodology indicates that if there are highly exposed groups or subpopulations within that target general population, such as subsistence consumers, WQS should protect those consumers to a level of incremental risk no greater than one in ten thousand (1×10^{-4}).[47] However, where treaty-reserved tribal fishing rights apply to particular waters, it would be unreasonable to expose the communities exercising those rights to levels of risk above what would be reasonable for the general population of the state. See section III.C.b for more information on cancer risk level.

e. Water Quality Criteria Sufficient to Protect the Use(s)

The data used to determine the FCR are critical to deriving criteria that will protect the subsistence fishing portion of the fish and shellfish harvesting designated use. EPA provides a recommended national default FCR for the general population but strongly recommends the use of local or regional data, where available, over default values.[48] Further, as EPA explained in its January 2013 *Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions*, it is important to avoid selecting a FCR that reflects consumption that is suppressed due to concerns about the safety of available fish. Under certain circumstances, it may also be relevant to look at the availability of fish when considering suppression effects on

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[47] 2000 Methodology, 2-6.

[48] EPA's 2000 Methodology, 4-24 – 4-25 ("EPA's first preference is that States and authorized Tribes use the results from fish intake surveys of local watersheds within the State or Tribal jurisdiction to establish fish intake rates that are representative of the defined populations being addressed for the particular waterbody.")

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current FCRs.[49] EPA maintains that it is important, as a CWA goal, to avoid the suppression effect that may occur when criteria are derived using a FCR for a given target population that reflects an artificially diminished level of fish consumption from an appropriate baseline level of consumption for that population.[50] To use a FCR that is suppressed would not result in criteria that actually protect a fishing use because it would merely reinforce the existing suppressed use, or worse, set in motion a "downward spiral"[51] of further reduction/suppression of fish consumption due to concerns about the safety of available fish or depleted fisheries. The CWA is meant not merely to maintain the status quo, but to *restore* and maintain the chemical, physical, and biological integrity of the Nation's waters. Therefore, deriving criteria using an unsuppressed FCR furthers the restoration goals of the CWA and ensures protection of human health-related designated uses (as pollutant levels decrease, fish habitats are restored, and fish availability increases over time).

CWA section 303(c)(2)(A) requires that water quality criteria be "based upon" applicable designated uses, and that such uses and criteria "shall be such as to protect the public health or

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[49] As noted by the National Environmental Justice Advisory Council in the 2002 publication *Fish Consumption and Environmental Justice*, "a suppression effect may arise when fish upon which humans rely are no longer available in historical quantities (and kinds), such that humans are unable to catch and consume as much fish as they had or would. Such depleted fisheries may result from a variety of affronts, including an aquatic environment that is contaminated, altered (due, among other things, to the presence of dams), overdrawn, and/or overfished. Were the fish not depleted, these people would consume fish at more robust baseline levels. . . . In the Pacific Northwest, for example, compromised aquatic ecosystems mean that fish are no longer available for tribal members to take, as they are entitled to do in exercise of their treaty rights."). National Environmental Justice Advisory Council, *Fish Consumption and Environmental Justice*, p.44, 46 (2002) *available at* https://www.epa.gov/sites/production/files/2015-02/documents/fish-consump-report_1102.pdf.

[50] *See id.* at 43.

[51] *See id.* at 47.

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welfare, enhance the quality of water and serve the purposes of this [Act].” The “purposes of this [Act]” are in section 101, and include, among other things, “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” and “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water.” EPA's implementing water quality regulations at 40 CFR 131.11 require water quality criteria to be based on sound scientific rationale and sufficient to protect the designated use, regardless of whether that use is currently being met. A subsistence fishing designated use, by definition, represents a level of fish consumption that is adequate to provide subsistence, regardless of whether such consumption is occurring today. It is entirely consistent with the CWA and regulations for EPA to determine that to protect the designated use, it is necessary and appropriate to derive the human health criteria using a fish consumption rate that reflects a subsistence level of consumption that is not artificially suppressed as a result of concerns about pollution or fish contamination where such data are available.

Any fish consumption rate used in setting criteria to protect a subsistence fishing use must allow for the consumption of fish from local waters at levels that could sustain and be protective of members of the target population practicing a subsistence lifestyle. Water quality criteria derived using a FCR below a level that would be adequate to sustain members of the target population exercising a subsistence use, such as tribal members who have a history of subsistence fishing in Washington, would not be protective of that use. In this context, use of an

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unsuppressed rate, where data to determine that rate are available, would ensure that the resulting criteria are protective of the subsistence use.

The importance of relying on an unsuppressed FCR, where data are available, is especially evident where the subsistence use is based in whole or in part on tribal treaty and other reserved subsistence fishing rights. This is because if human health criteria are set at a level that assumes only suppressed fish consumption, the waters will only be protected to support that level of suppressed fish consumption and thus never fully support—and potentially even may directly impair—the tribes' legal right to take fish for subsistence purposes. Accordingly, where adequate data are available to clearly demonstrate what the current unsuppressed FCR is for the relevant target population, the selected FCR must reflect that value. In the absence of such data, states, tribes, and EPA could consider upper percentile FCRs of local contemporary fish consumption surveys (such as the 95th or 99th percentile), heritage FCR data for the target population, and/or FCRs that provide for a subsistence fishing lifestyle. Consultation with tribes is important to ensure that all data and information relevant to this issue are considered.

Although treaties do not cover all waters in Washington, they cover the vast majority of the state's waters. Additionally, where treaty and non-treaty reserved rights apply on waters downstream of waters without reserved fishing rights, upstream WQS must provide for the attainment and maintenance of downstream WQS in accordance with EPA's regulations at 40 CFR 131.10(b). Based on a GIS analysis included in the docket for this final rulemaking, EPA concluded that greater than 90 percent of waters in Washington are covered by treaty rights

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and/or are upstream of waters with such rights or waters in Oregon (see section III.C.a). For any remaining waters in Washington, where reserved rights do not apply and that are not upstream of waters with such rights or waters in Oregon, it would be administratively burdensome to develop separate criteria to apply to such a small subset of waters, and would be difficult to implement separate criteria with a patchwork of protection among these areas when administering the WQS, NPDES permitting, and other programs. Therefore, EPA applies these final criteria to all waters under Washington's jurisdiction.

Many commenters supported EPA's decisions to derive criteria protective of the tribal population exercising their treaty-reserved fishing rights in Washington as the target general population, and to apply the resulting criteria to all waters under Washington's jurisdiction. Many other commenters did not support these decisions, and argued that EPA did not have a scientific or legal basis to interpret Washington's designated uses to encompass subsistence fishing and to treat the tribal population with treaty-reserved fishing rights as the target general population for protection under such use. For additional responses to these comments, see EPA's Response to Comment document in the docket for this rule.

C. Washington-Specific Human Health Criteria Inputs

a. Fish Consumption Rate

In Washington there are 24 tribes with treaty-reserved fishing rights, rights that encompass the right to fish for subsistence purposes, and several local and regional FCR surveys and heritage tribal consumption reports with widely varying estimates of tribal FCRs in

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Washington (for tables of relevant FCRs, see EPA's Response to Comment document in the docket for this rule). Available heritage FCRs range from 401 to 995 g/day, and contemporary survey FCRs range from 63 to 214 g/day (mean FCRs) and from 113 to 489 g/day (90th percentile FCRs). The discrepancy between contemporary and heritage FCRs suggests that current FCRs for certain tribal consumers in Washington may be suppressed.[52,53] It is currently unclear how a contemporary fish consumption survey might quantitatively account for suppression, resulting in estimates of current FCRs that are unsuppressed to the maximum degree practicable. There is no local survey of contemporary fish consumption in Washington adjusted specifically to account for suppression, and no survey is a clear representation of current unsuppressed consumption for all tribes in Washington. Consistent with the principles outlined above, EPA considered the available, scientifically sound fish consumption data for Washington tribes and consulted with tribal governments to select a FCR for this final rulemaking.

The Washington tribes have generally agreed that 175 g/day is acceptable for deriving protective criteria at this time, when accompanied by other protective input parameters to calculate the criteria. However, EPA recognizes that some tribes have raised concerns as to whether a FCR of 175 g/day reasonably reflects current unsuppressed consumption rates of tribes within the State of Washington, based on the best currently available information. A FCR of 175

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[52] The number of fish advisories and closures due to contamination also suggest that contemporary FCRs may be suppressed due to concerns about pollution. *See* Washington Department of Health, Fish Consumption Advisories, available at http://www.doh.wa.gov/CommunityandEnvironment/Food/Fish/Advisories.

[53] Heritage rates refer to the rates of fish intake consistent with traditional tribal practices, prior to contact with European settlers.

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g/day approximates the 95th percentile consumption rate of surveyed tribal members from the CRITFC study[54] and includes anadromous fish, which is reasonable given that these marine species reside in Washington's nearshore (i.e., within three miles of the coast) waters, especially Puget Sound, and accumulate pollutants discharged to these waters during a significant portion of their lives. The CRITFC survey also includes four tribes (three of which have treaty-reserved rights in Washington, the most of any one contemporary FCR survey in Washington) along the Columbia River in Washington, Idaho, and Oregon. Given this, and also considering the variability in heritage and contemporary FCRs and the uncertainty regarding suppression effects on current FCRs, the CRITFC survey provides scientifically sound estimates of fish consumption for the purpose of deriving a Washington statewide FCR for the tribal target general population.

Additionally, Oregon, much of which is downstream from Washington (or cross-stream in the Columbia River where it forms the border between the two states), used a FCR of 175 g/day to derive statewide human health criteria, which EPA approved in 2011. Use of this FCR to derive Washington's criteria will thus help ensure the attainment and maintenance of downstream WQS in Oregon.

Many commenters supported EPA's selected FCR, as well as the Agency's position that it is important to consider suppression effects on the FCR in general, and necessary and appropriate to do so where subsistence fishing is a reserved right and encompassed by the

[54] *Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (Columbia River Inter-Tribal Fish Commission (CRITFC), 1994).

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designated use of the waters. Some commenters expressed concern that 175 g/day was not high enough to reflect current or historical consumption rates of all tribes in Washington. Many other commenters expressed the opposite concern, that 175 g/day was unreasonably high in order to protect Washington residents, and argued that treaty-reserved rights do not confer the right to eat fish at unsuppressed levels. Some of those commenters also argued that the CWA does not mention suppression. For detailed responses to these comments, see EPA's Response to Comment document in the docket for this rule.

b. Cancer Risk Level

EPA derives final human health criteria for carcinogens in Washington using a cancer risk level of one in one million (10^{-6}), based on Washington's longstanding use of that cancer risk level, EPA guidance, tribal reserved fishing rights, and downstream protection requirements.

To derive final human health criteria for each state in the NTR, EPA selected a cancer risk level based on each state's policy or practice regarding what risk level should be used when regulating carcinogens in surface waters. In its official comments on EPA's proposed NTR in 1992, Washington asked EPA to promulgate human health criteria using a cancer risk level of 10^{-6}, stating, "The State of Washington supports adoption of a risk level of one in one million for carcinogens. If EPA decides to promulgate a risk level below one in one million, the rule should specifically address the issue of multiple contaminants so as to better control overall site risks." (57 FR 60848, December 22, 1992). Accordingly, in the NTR, EPA used a cancer risk level of 10^{-6} (one in one million) to derive human health criteria for Washington. Subsequently,

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Washington adopted and EPA approved a provision in the state's WQS that reads: "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 a million" (WAC 173-201A-240(6)). In Washington's August 1, 2016 submittal, the cancer risk level is identified in the new text and reformatted toxics criteria table at WAC 173-201A-240.

Subsequent to promulgating the NTR, EPA issued its 2000 Methodology, which states that when promulgating water quality criteria for states and tribes, EPA intends to use the 10^{-6} cancer risk level, which reflects an appropriate risk for the general population.[55] In this action, as described above, tribes with treaty-reserved rights in Washington are the target general population for the purpose of deriving revised criteria to protect the subsistence fishing uses of Washington's waters. Because those tribes are the general population in this case, EPA's selection of a 10^{-6} cancer risk level for the tribal target general population is consistent with current EPA guidance, specifically the 2000 Methodology.

In addition, use of a cancer risk rate of 10^{-6} ensures that the resulting human health criteria for carcinogens protect the subsistence fishing component of the designated use. Due to uncertainty regarding suppression effects (see sections II.C, III.B, and III.C.a, and EPA's Response to Comment document in the docket for this rule), using a cancer risk level of 10^{-6} along with a FCR of 175 g/day ensures that tribal members with treaty-reserved fishing rights will be protected at an acceptable risk level for the target general population. Throughout tribal

[55] EPA's 2000 Methodology, pages 2-6.

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consultation, the tribes generally supported 175 g/day as an acceptable FCR for purposes of revising Washington's human health criteria at this time, when accompanied by other protective input parameters (e.g., a cancer risk level of 10^{-6}), to account for the uncertainty around an appropriate FCR value reflective of tribal subsistence fishing.

Finally, as discussed in section III.C.a, many of Washington's rivers are in the Columbia River Basin, upstream of Oregon's portion of the Columbia River. Oregon's criteria are based on a FCR of 175 g/day and a cancer risk level of 10^{-6}. EPA's decision to derive human health criteria for Washington using a cancer risk level of 10^{-6} along with a FCR of 175 g/day helps ensure that Washington's criteria will ensure the attainment and maintenance of Oregon's downstream WQS as required by 40 CFR 131.10(b).

Many commenters supported EPA's selection of a 10^{-6} cancer risk level, and EPA's rationale for doing so. Many other commenters disagreed and argued that deriving human health criteria for Washington using a 10^{-5} cancer risk level is appropriate and consistent with EPA guidance and past practice. Many of these commenters stated that tribal treaties did not confer rights to a particular level of risk. Additionally, some commenters supported EPA's consideration of downstream WQS in Oregon when establishing the criteria upstream, while others expressed concern that EPA was suggesting that Washington's upstream criteria must be identical to Oregon's downstream criteria and in doing so, acting inconsistently with its 2014

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Frequently Asked Questions document on downstream protection.[56] For detailed responses to these comments, see EPA's Response to Comment document in the docket for this rule.

c. Relative Source Contribution

EPA recommends using a RSC for non-carcinogens and nonlinear carcinogens to account for sources of exposure other than drinking water and consumption of inland and nearshore fish and shellfish (see section II.C.d). In 2015, after evaluating information on chemical uses, properties, occurrences, releases to the environment and regulatory restrictions, EPA developed chemical-specific RSCs for non-carcinogens and nonlinear carcinogens ranging from 0.2 (20 percent) to 0.8 (80 percent) following the Exposure Decision Tree approach described in EPA's 2000 Methodology.[57,58] EPA proposed to use these same RSCs to derive human health criteria for Washington, and where EPA did not update the nationally recommended criteria for certain pollutants in 2015, EPA proposed to use a RSC of 0.2 to derive human health criteria for those pollutants in Washington to ensure protectiveness.

Several commenters supported EPA's use of RSCs to account for other sources of pollutant exposure. Several others disagreed, arguing that water quality criteria under the CWA cannot control or consider sources of exposure other than from drinking water and eating fish

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[56] https://nepis.epa.gov/Exe/ZyPDF.cgi/P100LIJF.PDF?Dockey=P100LIJF.PDF

[57] USEPA. 2000. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-822-B-00-004. https://www.epa.gov/wqc/human-health-water-quality-criteria.

[58] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/wqc/human-health-water-quality-criteria.

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and shellfish, so human health criteria should not account for these sources. Many of the commenters, in addition to criticizing the concept of RSCs as overly-conservative, argued that EPA was double-counting exposure to anadromous fish (which EPA considers marine in the national dataset) by both including them in the FCR and using the pollutant-specific RSCs that EPA pairs with an inland and nearshore-only FCR in its 304(a) national recommended human health criteria. Commenters argued that this is inconsistent with EPA's guidance, which recommends that states adjust the RSC to reflect a greater proportion of the RfD being attributed to water, fish and shellfish intake in instances where the FCR includes freshwater, estuarine and all marine fish consumption.[59] For detailed responses to the comments, see EPA's Response to Comment document in the docket for this rule.

Additionally, after further evaluation of the proposed revised human health criteria for antimony, EPA determined that the existing 304(a) national recommended criteria for antimony (last updated in 2002) use a pollutant-specific RSC of 0.4. EPA intended to apply a 0.2 RSC as a protective approach only where pollutant-specific RSCs were not already developed, which is not the case for antimony.[60]

While the selected FCR of 175 g/day does not include all marine fish (e.g., it does not include consumption of species such as swordfish, tuna, etc.), EPA acknowledges that the

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[59] USEPA. January 2013. *Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions.* https://www.epa.gov/wqc/human-health-ambient-water-quality-criteria-and-fish-consumption-rates-frequently-asked.

[60] http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=20003IEI.txt
See also: National Primary Drinking Water Regulations-Synthetic Organic Chemicals and Inorganic Chemicals; National Primary Drinking Water Regulations Implementation, 57 FR 31776, July 17, 1992.

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criteria as proposed may have double-counted potential exposure to some pollutants in certain marine fish that are anadromous (e.g., salmon). Therefore, EPA reviewed the RSCs in the proposed rule in light of EPA's guidance, which includes both the Exposure Decision Tree and associated discussion in EPA's 2000 Methodology, as well as EPA's recommendation to adjust the RSC when the FCR includes freshwater, estuarine, and all marine fish consumption. Arguably, EPA's guidance does not consider this exact scenario where the selected FCR includes some, but not all, species that EPA classifies as marine in the national NHANES dataset (and excludes some species that EPA classifies as nearshore in the national NHANES dataset, i.e., shellfish).

One way to adjust the RSC values to account for inclusion of marine fish in the FCR is to examine the ratio of the national data characterizing all fish consumption rates versus inland and nearshore-only fish consumption rates derived from the NHANES dataset, and apply this ratio to the proportion of the RfD reserved for inland and nearshore fish consumption in the RSC. This approach assumes that the pollutant concentrations in anadromous fish are the same as the pollutant concentrations in inland and nearshore fish, which is the same assumption inherent in including multiple fish categories in the FCR for criteria calculation. This approach further assumes that the ratio of all fish to inland and nearshore fish from NHANES data approximates the ratio of inland, nearshore, and anadromous fish to just inland and nearshore fish from CRITFC data. At the 90th percentile rate of consumption, the national adult consumption rate from NHANES data for all fish is 53 g/day and 22 g/day for inland and nearshore-only fish, or a

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ratio of 2.4. Applying this to a RSC of 0.2 yields 0.48, or 0.5 rounding to a single decimal place. Because the selected FCR includes some but not all marine species, EPA decided to use this approach to adjust the RSC values. However, EPA only adjusted RSC values to 0.5 for criteria calculations previously using a RSC between 0.2 and 0.5.

There are important considerations in assigning a RSC, such as the total number of potential exposure routes from sources other than fish consumption, which compels caution in using this approach in all cases. As such, EPA decided to retain RSC values of 0.5 and above, recognizing the compelling need to account for the other potential exposure sources, including marine fish not accounted for in the FCR of 175 g/day, consistent with the logic and procedures used in establishing the national 304(a) criteria recommendations. The Exposure Decision Tree in EPA's 2000 Methodology only recommends using a RSC above 0.5 when there are no significant known or potential uses/sources other than the source of concern (Box 7, Figure 4-1 in EPA's 2000 Methodology) or there are sufficient data available on each source to characterize the exposure to those sources (Box 8C, Figure 4-1). Neither of these conditions are met for most of the pollutants in the final rule for Washington. EPA is not adjusting the RSCs for pollutants that already have national recommended RSCs greater than or equal to 0.5 (2-Chloronaphthalene (0.8), Endrin (0.8), gamma-BHC/Lindane (0.5), and methylmercury (2.7×10^{-5} subtracted from the RfD, which equates to a RSC of approximately 0.73). See Table 1, column B2 for a list of EPA's final RSCs by pollutant.

d. Body Weight

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EPA calculates final human health criteria for Washington using a body weight of 80 kg, which represents the average weight of a U.S. adult and is consistent with EPA's 2015 updated national default body weight (see section II.C.c).[61] Local tribal survey data relevant to Washington are also consistent with EPA's national adult body weight of 80 kg.[62] Most commenters were silent on EPA's proposal to use a body weight of 80 kg to calculate human health criteria for Washington. A few commenters were concerned that 80 kg would not ensure adequate protection of women and children, and may not be representative of all residents in Washington based on limited local or regional data on body weight specific to Washington residents. EPA understands these concerns, but decided that the survey on which EPA's national default of 80 kg is based provides the most comprehensive dataset to establish a body weight value for deriving statewide human health criteria for Washington, and is consistent with the local tribal survey data mentioned above. The data cited by commenters do not provide sufficient evidence to come up with an alternative statewide body weight input parameter since the studies cited are limited in scope and pertain to specific subpopulations. For detailed responses to the comments, see EPA's Response to Comment document in the docket for this rule.

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[61] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/wqc/human-health-water-quality-criteria.

[62] USEPA Region 10. August 2007. 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. Appendix B. http://yosemite.epa.gov/r10/CLEANUP.NSF/7780249be8f251538825650f0070bd8b/e12918970debc8e488256da6005c428e/$FILE/Tribal%20Shellfish%20Framework.pdf.

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e. Drinking Water Intake

EPA calculates final human health criteria for Washington using a drinking water intake rate of 2.4 L/day, consistent with EPA's 2015 updated national default drinking water intake rate (see section II.C.c).[63] Most commenters were silent on or agreed with EPA's proposal to use a drinking water intake rate of 2.4 L/day to calculate human health criteria for Washington. However, two commenters stated this input was unnecessary in human health criteria derivation. Since at least the 1980s, EPA has included the drinking water exposure pathway in the development of human health criteria in order to protect water bodies with a drinking water designated use. EPA also provides the option of using organism-only human health criteria for water bodies where there is no drinking water use. One commenter stated that 2.4 L/day was an underestimate, and expressed concern that this value is not protective of tribal members who consume more water. EPA determined that it is appropriate to use its 2015 final national default drinking water intake rate, since it was adjusted pursuant to public comments after EPA issued the draft national default rate of 3 L/day in 2014. EPA acknowledges the concerns about members of the target general population who may consume larger amounts of water, but EPA does not have data (and did not receive any during the public comment period) with which to

[63] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/wqc/human-health-water-quality-criteria.

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calculate a Washington-specific drinking water intake rate. For detailed responses to the comments, see EPA's Response to Comment document in the docket for this rule.

f. Pollutant-Specific Reference Doses and Cancer Slope Factors

As part of EPA's 2015 updates to its 304(a) recommended human health criteria, EPA conducted a systematic search of eight peer-reviewed, publicly available sources to obtain the most current toxicity values for each pollutant (RfDs for non-carcinogenic effects and CSFs for carcinogenic effects).[64] EPA calculates final human health criteria for Washington using the same toxicity values that EPA used in its 2015 304(a) criteria updates, to ensure that the resulting criteria are based on a sound scientific rationale. Where EPA did not update criteria for certain pollutants in 2015 and those pollutants are included in this final rule, EPA uses the toxicity values that the Agency used the last time it updated its 304(a) criteria for those pollutants as the best available scientific information. See Table 1, columns B1 and B3 for a list of EPA's final toxicity factors by pollutant.

In general, commenters were supportive of EPA using the latest and most scientifically defensible toxicity values to derive human health criteria for Washington. Some commenters expressed concern that where EPA did not update its 304(a) national recommended human health criteria for particular pollutants in 2015, the toxicity values from the existing 304(a)

[64] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/wqc/human-health-water-quality-criteria.

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criteria for those pollutants were no longer valid. In particular, those commenters expressed concern about the CSFs for arsenic and PCBs, and the RfD for methylmercury, and argued that EPA should not revise Washington's criteria for those pollutants until toxicity factors are updated in the future. Unlike the situation with the toxicity factors for arsenic, dioxin and thallium (see section III.A), there is not sufficient scientific uncertainty surrounding the CSF for PCBs or the RfD for methylmercury to warrant delaying revision to Washington's human health criteria for these pollutants. For detailed responses to the comments, see EPA's Response to Comment document in the docket for this rule.

g. Pollutant-Specific Bioaccumulation Factors

For the 2015 national 304(a) human health criteria update, EPA estimated chemical-specific BAFs using a framework for deriving national BAFs described in EPA's 2000 Methodology.[65] Because the surveyed population upon which the 175 g/day FCR is based consumed almost exclusively trophic level four fish (i.e., predator fish species), EPA uses the trophic level four BAF from the 2015 304(a) human health criteria updates in conjunction with the 175 g/day FCR, in order to derive protective criteria.[66] Where in 2015, EPA estimated BAFs from laboratory-measured BCFs and therefore derived a single pollutant-specific BAF for all trophic levels, EPA uses those single BAFs from the 2015 304(a) human health criteria updates.

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[65] USEPA. 2000. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-822-B-00-004. https://www.epa.gov/wqc/human-health-water-quality-criteria.

[66] *Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (Columbia River Inter-Tribal Fish Commission (CRITFC), 1994)

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Where EPA's existing 304(a) recommended human health criteria for certain pollutants still incorporate a BCF, and those pollutants are included in this final rule, EPA uses those BCFs as the best available scientific information. See Table 1, columns B4 and B5 for a list of EPA's final bioaccumulation factors by pollutant.

Many commenters supported EPA's choice to use the latest and most scientifically defensible BAFs to derive human health criteria for Washington, and to use BCFs only when BAFs were not available for a given pollutant. Other commenters asserted that BCFs are no less scientifically defensible than BAFs, and that EPA did not provide sufficient information regarding how it developed BAFs in 2015 for commenters to fully evaluate EPA's proposed approach.

EPA's 2000 Methodology recommends use of BAFs that account for uptake of a contaminant from all sources by fish and shellfish, rather than BCFs that only account for uptake from the water column. EPA's 2015 national recommended BAFs are based on peer-reviewed, publicly available data and were developed consistent with EPA's 2000 Methodology and its supporting documents. EPA provided the basis for its 2015 BAFs in individual pollutant-specific criteria documents. The final human health criteria for Washington are consistent with EPA's 2000 Methodology, which makes clear that BAFs are a more scientifically defensible representation of bioaccumulation than BCFs. For detailed responses to the comments, see EPA's Response to Comment document in the docket for this rule.

D. Final Human Health Criteria for Washington

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EPA finalizes 144 human health criteria for 74 different pollutants (72 organism-only criteria and 72 water-plus-organism criteria) to protect the applicable designated uses of Washington's waters (see Table 1). The water-plus-organism criteria in column C1 and the methylmercury criterion in column C2 of Table 1 are the applicable criteria for any waters that include the Domestic Water (domestic water supply) use defined in Washington's WQS (WAC 173-201A-600). The organism-only criteria in column C2 of Table 1 apply to waters that do not include the Domestic Water (domestic water supply) use and that Washington defines at WAC 173-201A-600 and 173-201A-610 as the following: Fresh waters – Harvesting (fish harvesting), and Recreational Uses; Marine waters – Shellfish Harvesting (shellfish—clam, oyster, and mussel—harvesting), Harvesting (salmonid and other fish harvesting, and crustacean and other shellfish—crabs, shrimp, scallops, etc.—harvesting), and Recreational Uses.

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Table 1. Human Health Criteria for Washington									
	A		B					C	
	Chemical	CAS Number	Cancer Slope Factor, CSF (per mg/kg·d) (B1)	Relative Source Contribution, RSC (-) (B2)	Reference Dose, RfD (mg/kg·d) (B3)	Bio-accumulation Factor (L/kg tissue) (B4)	Bio-concentration Factor (L/kg tissue) (B5)	Water & Organisms (µg/L) (C1)	Organisms Only (µg/L) (C2)
1	1,1,1-Trichloroethane	71556	-	0.50	2	10	-	20,000	50,000
2	1,1,2,2-Tetrachloroethane	79345	0.2	-	-	8.4	-	0.1	0.3
3	1,1,2-Trichloroethane	79005	0.057	-	-	8.9	-	0.35	0.90
4	1,1-Dichloroethylene	75354	-	0.50	0.05	2.6	-	700	4,000
5	1,2,4-Trichlorobenzene	120821	0.029	-	-	430	-	0.036	0.037
6	1,2-Dichlorobenzene	95501	-	0.50	0.3	82	-	700	800
7	1,2-Dichloroethane	107062	0.0033	-	-	1.9	-	8.9	73
8	1,2-Dichloropropane	78875	-	-	-	-	-	-	-
9	1,2-Diphenylhydrazine	122667	0.8	-	-	27	-	0.01	0.02
10	1,2-Trans-Dichloroethylene	156605	-	0.50	0.02	4.7	-	200	1,000
11	1,3-Dichlorobenzene	541731	-	0.50	0.002	190	-	2	2
12	1,3-Dichloropropene	542756	0.122	-	-	3.0	-	0.22	1.2
13	1,4-Dichlorobenzene	106467	-	0.50	0.07	84	-	200	200
14	2,3,7,8-TCDD (Dioxin)**	1746016	156,000	-	-	-	5,000	1.3E-08	1.4E-08
15	2,4,6-Trichlorophenol	88062	-	-	-	-	-	-	-
16	2,4-Dichlorophenol	120832	-	0.50	0.003	48	-	10	10
17	2,4-Dimethylphenol	105679	-	-	-	-	-	-	-
18	2,4-Dinitrophenol	51285	-	0.50	0.002	4.4	-	30	100
19	2,4-Dinitrotoluene	121142	-	-	-	-	-	-	-
20	2-Chloronaphthalene	91587	-	0.80	0.08	240	-	100	100
21	2-Chlorophenol	95578	-	-	-	-	-	-	-
22	2-Methyl-4,6-Dinitrophenol	534521	-	0.50	0.0003	10	-	3	7
23	3,3'-Dichlorobenzidine	91941	-	-	-	-	-	-	-
24	3-Methyl-4-Chlorophenol	59507	-	-	-	-	-	-	-
25	4,4'-DDD	72548	0.24	-	-	240,000	-	7.9E-06	7.9E-06
26	4,4'-DDE	72559	0.167	-	-	3,100,000	-	8.8E-07	8.8E-07
27	4,4'-DDT	50293	0.34	-	-	1,100,000	-	1.2E-06	1.2E-06
28	Acenaphthene	83329	-	0.50	0.06	510	-	30	30

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29	Acrolein	107028	-	-	-	-	-	-	-
30	Acrylonitrile	107131	-	-	-	-	-	-	-
31	Aldrin	309002	17	-	-	650,000	-	4.1E-08	4.1E-08
32	alpha-BHC	319846	6.3	-	-	1,500	-	4.8E-05	4.8E-05
33	alpha-Endosulfan	959988	-	0.50	0.006	200	-	6	7
34	Anthracene	120127	-	0.50	0.3	610	-	100	100
35	Antimony	7440360	-	0.50	0.0004	-	1	6	90
36	Arsenic**	7440382	1.75	-	-	-	44	[a]0.018	[a]0.14
37	Asbestos	1332214	-	-	-	-	-	-	-
38	Benzene	71432	-	-	-	-	-	-	-
39	Benzidine	92875	-	-	-	-	-	-	-
40	Benzo(a) Anthracene	56553	0.73	-	-	3,900	-	0.00016	0.00016
41	Benzo(a) Pyrene	50328	7.3	-	-	3,900	-	1.6E-05	1.6E-05
42	Benzo(b) Fluoranthene	205992	0.73	-	-	3,900	-	0.00016	0.00016
43	Benzo(k) Fluoranthene	207089	0.073	-	-	3,900	-	0.0016	0.0016
44	beta-BHC	319857	1.8	-	-	180	-	0.0013	0.0014
45	beta-Endosulfan	33213659	-	-	-	-	-	-	-
46	Bis(2-Chloroethyl) Ether	111444	-	-	-	-	-	-	-
47	Bis(2-Chloro-1-Methylethyl) Ether*	108601	-	0.50	0.04	10	-	400	900
48	Bis(2-Ethylhexyl) Phthalate	117817	0.014	-	-	710	-	0.045	0.046
49	Bromoform	75252	0.0045	-	-	8.5	-	4.6	12
50	Butylbenzyl Phthalate	85687	0.0019	-	-	19,000	-	0.013	0.013
51	Carbon Tetrachloride	56235	-	-	-	-	-	-	-
52	Chlordane	57749	0.35	-	-	60,000	-	2.2E-05	2.2E-05
53	Chlorobenzene	108907	-	0.50	0.02	22	-	100	200
54	Chlorodibromomethane	124481	0.04	-	-	5.3	-	0.60	2.2
55	Chloroform	67663	-	0.50	0.01	3.8	-	100	600
56	Chrysene	218019	0.0073	-	-	3,900	-	0.016	0.016
57	Copper	7440508	-	-	-	-	-	-	-
58	Cyanide	57125	-	0.50	0.0006	-	1	9	100
59	Dibenzo(a,h) Anthracene	53703	7.3	-	-	3,900	-	1.6E-05	1.6E-05
60	Dichlorobromomethane	75274	0.034	-	-	4.8	-	0.73	2.8
61	Dieldrin	60571	16	-	-	410,000	-	7.0E-08	7.0E-08
62	Diethyl Phthalate	84662	-	0.50	0.8	920	-	200	200
63	Dimethyl Phthalate	131113	-	0.50	10	4,000	-	600	600

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64	Di-n-Butyl Phthalate	84742	-	0.50	0.1	2,900	-	8	8
65	Endosulfan Sulfate	1031078	-	0.50	0.006	140	-	9	-
66	Endrin	72208	-	0.80	0.0003	46,000	-	0.002	0.002
67	Endrin Aldehyde	7421934	-	-	-	-	-	-	-
68	Ethylbenzene	100414	-	0.50	0.022	160	-	29	31
69	Fluoranthene	206440	-	0.50	0.04	1,500	-	6	6
70	Fluorene	86737	-	0.50	0.04	710	-	10	10
71	gamma-BHC; Lindane	58899	-	0.50	0.0047	2,500	-	0.43	0.43
72	Heptachlor	76448	4.1	-	-	330,000	-	3.4E-07	3.4E-07
73	Heptachlor Epoxide	1024573	5.5	-	-	35,000	-	2.4E-06	2.4E-06
74	Hexachlorobenzene	118741	1.02	-	-	90,000	-	5.0E-06	5.0E-06
75	Hexachlorobutadiene	87683	0.04	-	-	1,100	-	0.01	0.01
76	Hexachlorocyclopentadiene	77474	-	0.50	0.006	1,300	-	1	1
77	Hexachloroethane	67721	0.04	-	-	600	-	0.02	0.02
78	Indeno(1,2,3-cd) Pyrene	193395	0.73	-	-	3,900	-	0.00016	0.00016
79	Isophorone	78591	-	-	-	-	-	-	-
80	Methyl Bromide	74839	-	0.50	0.02	1.4	-	300	-
81	Methylene Chloride	75092	0.002	-	-	1.6	-	10	100
82	Methylmercury	22967926	-	2.7E-05	0.0001	-	-	-	[b]0.03 (mg/kg)
83	Nickel	7440020	-	0.50	0.02	-	47	80	100
84	Nitrobenzene	98953	-	0.50	0.002	3.1	-	30	100
85	N-Nitrosodimethylamine	62759	-	-	-	-	-	-	-
86	N-Nitrosodi-n-Propylamine	621647	-	-	-	-	-	-	-
87	N-Nitrosodiphenylamine	86306	-	-	-	-	-	-	-
88	Pentachlorophenol (PCP)	87865	0.4	-	-	520	-	0.002	0.002
89	Phenol	108952	-	0.50	0.6	1.9	-	9,000	70,000
90	Polychlorinated Biphenyls (PCBs)		2	-	-	-	31,200	[c]7E-06	[c]7E-06
91	Pyrene	129000	-	0.50	0.03	860	-	8	8
92	Selenium	7782492	-	0.50	0.005	-	4.8	60	200
93	Tetrachloroethylene	127184	0.0021	-	-	76	-	2.4	2.9
94	Thallium**	7440280	-	-	0.000068	-	116	1.7	6.3
95	Toluene	108883	-	0.50	0.0097	17	-	72	130
96	Toxaphene	8001352	-	-	-	-	-	-	-
97	Trichloroethylene	79016	0.05	-	-	13	-	0.3	0.7

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98	Vinyl Chloride	75014	1.5	-	-	1.7	-	-	0.18
99	Zinc	7440666	-	0.50	0.3	-	47	1,000	1,000
[a]	This criterion refers to the inorganic form of arsenic only.								
[b]	This criterion is expressed as the fish tissue concentration of methylmercury (mg methylmercury/kg fish). See *Water Quality Criterion for the Protection of Human Health: Methylmercury* (EPA-823-R-01-001, January 3, 2001) for how this value is calculated using the criterion equation in EPA's 2000 Human Health Methodology rearranged to solve for a protective concentration in fish tissue rather than in water.								
[c]	This criterion applies to total PCBs (e.g., the sum of all congener or isomer or homolog or Aroclor analyses).								
*	Bis(2-Chloro-1-Methylethyl) Ether was previously listed as Bis(2-Chloroisopropyl) Ether.								
**	These criteria were promulgated for Washington in the National Toxics Rule at 40 CFR 131.36, and are moved into 40 CFR 131.45 to have one comprehensive human health criteria rule for Washington.								

E. Applicability of Criteria

These new and revised human health criteria apply for CWA purposes in addition to any existing criteria already applicable to Washington's waters, including the state's narrative toxics criteria statement at WAC 173-201A-260(2)(a), and those human health criteria that Washington submitted on August 1, 2016, and EPA approved concurrent with this final rule.

EPA replicates in 40 CFR 131.45 the same general rules of applicability for human health criteria as in 40 CFR 131.36(c), with one exception. For waters suitable for the establishment of low flow return frequencies (i.e., streams and rivers), this final rule provides that Washington must not use a low flow value below which numeric standards can be exceeded that is less stringent than the harmonic mean flow (a long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows), so that the criteria are implemented to be protective of the applicable designated use. Per the *Revisions to the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (65 FR 66444, November 3, 2000), EPA now recommends harmonic mean flow be used

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to implement human health criteria for both carcinogens and non-carcinogens.[67] EPA received one comment on this provision, asking for clarification on whether this is consistent with Washington's current permitting approach of using the 30Q5 flow for non-carcinogens.[68] In response, Washington's use of low flow statistics more stringent than the harmonic mean flow is consistent with EPA's final rule.

Under the CWA, Congress gave states primary responsibility for developing and adopting WQS for their navigable waters (CWA section 303(a)-(c)). Although EPA revises and establishes new human health criteria for Washington in this final rule, Washington continues to have the option to adopt and submit to EPA human health criteria for the pollutants in this final rule, consistent with CWA section 303(c) and EPA's implementing regulations at 40 CFR part 131.

In its September 14, 2015 proposed rule, EPA proposed that if Washington adopted and submitted human health criteria, and EPA approved those criteria before finalizing its federal rule, EPA would not proceed with finalizing those criteria and Washington's approved criteria would be solely applicable for CWA purposes. EPA did not receive any comments opposing this provision, thus EPA is proceeding with such an approach. In this final rule, EPA is withdrawing Washington from the NTR at 40 CFR 131.36, and, with the exception of criteria for which EPA

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[67] See also USEPA. 2014. Water Quality Standards Handbook – Chapter 5: General Policies. U.S. Environmental Protection Agency. Office of Water. Washington, D.C. EPA-820-B-14-004. https://www.epa.gov/wqs-tech/water-quality-standards-handbook.

[68] The 30Q5 flow is the lowest 30-day average flow event expected to occur once every five years, on average (determined hydrologically).

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has approved Washington's criteria, EPA is incorporating the Washington-specific criteria in this rule (as well as the existing NTR criteria for arsenic, dioxin and thallium) into 40 CFR 131.45 so there is a single comprehensive set of federally promulgated criteria for Washington. Therefore, the CWA-effective numeric human health criteria in Washington consist of the federally promulgated criteria at 40 CFR 131.45 and those criteria that EPA approved at WAC 173-201A-240 in Washington's August 1, 2016 submittal.

Additionally, in its September 14, 2015 proposed rule, EPA proposed that if Washington adopted and submitted human health criteria after EPA finalized its rule, once EPA approved Washington's WQS, the pollutant-specific or site-specific EPA-approved criteria in Washington's WQS would become the solely effective criteria for CWA purposes and EPA's promulgated criteria for those pollutants or for that site would no longer apply. A few commenters supported this provision, where Washington's criteria for specific pollutants or sites become the only CWA-effective criteria upon EPA's approval, without any delay caused by EPA's withdrawal of the corresponding federal criteria. A few other commenters did not support this provision, and asked that EPA either delete the provision, or make clear that criteria adopted by the state would have to be at least as stringent as the federal criteria for EPA to approve and make the state criteria effective for CWA purposes. Upon further consideration of comments received on its proposed rule, EPA decided not to finalize this provision. Pursuant to 40 CFR 131.21(c), EPA's federally promulgated WQS are and will be applicable for purposes of the CWA until EPA withdraws those federally promulgated WQS. EPA would undertake such a

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rulemaking to withdraw the federal criteria if and when Washington adopts and EPA approves corresponding criteria that meet the requirements of section 303(c) of the CWA and EPA's implementing regulations at 40 CFR part 131.

F. Alternative Regulatory Approaches and Implementation Mechanisms

Washington has considerable discretion to implement these revised and new federal human health criteria through various water quality control programs including the NPDES program, which limits discharges to waters except in compliance with a NPDES permit. EPA's regulations at 40 CFR 131.14 authorize states and authorized tribes to adopt WQS variances to provide time to achieve the applicable WQS. 40 CFR part 131 defines WQS variances at 131.3(o) as time-limited designated uses and supporting criteria for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable conditions during the term of the WQS variances. WQS variances adopted in accordance with 40 CFR part 131 allow states and authorized tribes to address water quality challenges in a transparent and predictable way. Variances help states and authorized tribes focus on making incremental progress in improving water quality, rather than pursuing a downgrade of the underlying water quality goals through a designated use change, when the designated use is not attainable throughout the term of the variance due to one of the factors listed in 40 CFR 131.14. EPA's regulations at 40 CFR 122.47 provide the requirements when states and authorized tribes wish to include permit compliance schedules in their NPDES permits if dischargers need additional time to meet their water quality-based limits based on the applicable WQS. EPA's updated regulations at 40 CFR 131.15 require

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any state or authorized tribe wishing to use permit compliance schedules to also include provisions authorizing the use of permit compliance schedules after appropriate public involvement to ensure that a decision to allow permit compliance schedules derives from and complies with the applicable WQS. (80 FR 51022, August 21, 2015).

40 CFR 131.10 specifies how states and authorized tribes establish, modify or remove designated uses for their waters. 40 CFR 131.11 specifies the requirements for establishing criteria to protect designated uses, including criteria modified to reflect site-specific conditions. In the context of this rulemaking, a site-specific criterion (SSC) is an alternative value to the federal human health criteria that could be applied on a watershed, area-wide, or waterbody-specific basis that meets the regulatory test of protecting the designated use, being scientifically defensible, and ensuring the protection and maintenance of downstream WQS. A SSC may be more or less stringent than the otherwise applicable federal criterion. A SSC may be appropriate when further scientific data and analyses can bring added precision to express the concentration of a particular pollutant that protects the human health-related designated use in a particular waterbody.

A few commenters supported EPA's acknowledgement of the flexibilities that Washington has available when implementing the final criteria in this rule, while others commented that these tools allow Washington to delay or avoid implementing the criteria. EPA did not propose to change, nor does this final rule change, any of the flexibilities already afforded to Washington by EPA's regulations to modify or remove designated uses, adopt

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variances, issue compliance schedules, or establish site-specific criteria. These implementation tools are important for making incremental progress and allowing the time for adaptive management when designated uses and associated criteria are difficult to attain. Washington may continue to use any of these regulatory flexibilities when implementing the final federal human health criteria.

a. Designating Uses

EPA's final human health criteria apply to waters that Washington has designated for the following: Fresh waters – Harvesting (fish harvesting), Domestic Water (domestic water supply), and Recreational Uses; Marine waters – Shellfish Harvesting (shellfish—clam, oyster, and mussel—harvesting), Harvesting (salmonid and other fish harvesting, and crustacean and other shellfish—crabs, shrimp, scallops, etc.—harvesting), and Recreational Uses (see WAC 173-201A-600 and WAC 173-201A-610). If Washington removes the Domestic Water use but retains any of the other above designated uses for any particular waterbody affected by this final rule, and EPA finds that removal to be consistent with CWA section 303(c) and EPA's implementing regulations at 40 CFR part 131, then the federal organism-only criteria will apply in place of the federal water-plus-organism criteria. If Washington removes designated uses such that none of the above uses apply to any particular waterbody affected by this final rule and adopts the highest attainable use, as defined by 40 CFR 131.3(m), consistent with 40 CFR 131.10(g), and EPA finds that removal to be consistent with CWA section 303(c) and EPA's implementing regulations at 40 CFR part 131, then the federal human health criteria will no longer apply to that

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waterbody. Instead, any criteria associated with the newly designated highest attainable use would apply to that waterbody.

b. Variances and Compliance Schedules

EPA's final human health criteria apply to use designations that Washington has already established. Concurrent with this final rule, EPA approved revisions to Washington's variance and compliance schedule authorizing provisions. Washington may use its EPA-approved variance procedures (see WAC 173-201A-420) to establish time-limited designated uses and criteria to apply for the purposes specified in 40 CFR 131.14 as it pertains to federal criteria when adopting such variances. Washington has sufficient authority to use variances when implementing the human health criteria as long as such variances are adopted consistent with 40 CFR 131.14, and submitted to EPA for review under CWA section 303(c). Similarly, Washington may use its EPA-approved regulation authorizing the use of permit compliance schedules (see WAC 173-201A-510(4)), consistent with 40 CFR 131.15, to grant compliance schedules, as appropriate, for WQBELs based on the federal criteria. These state regulations are not affected by this final rule.

c. Site-Specific Criteria

As discussed in section III.E, if Washington adopts and EPA approves site-specific criteria that fully meet the requirements of section 303(c) of the CWA and EPA's implementing regulations at 40 CFR part 131, EPA will undertake a rulemaking to withdraw the corresponding federal criteria.

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IV. Economic Analysis

Under the CWA, water quality criteria are set on the basis of the latest scientific knowledge. EPA is not required under the CWA nor obligated under Executive Orders 12866 and 13563 to conduct an economic analysis of the criteria. Costs cannot be considered in establishing water quality criteria as part of WQS. Nonetheless, EPA conducted a cost analysis for the criteria in this final rule for the purpose of transparency and presents this information reflecting the potential economic effects of the rule.

These WQS may serve as a basis for development of NPDES permit limits. Washington has NPDES permitting authority, and retains considerable discretion in implementing standards. EPA evaluated the potential costs to NPDES dischargers associated with state implementation of EPA's final criteria. This analysis is documented in *Final Economic Analysis for the Revision of Certain Federal Water Quality Criteria Applicable to Washington*, which can be found in the record for this rulemaking.

Any NPDES-permitted facility that discharges pollutants for which the revised human health criteria are more stringent than the applicable aquatic life criteria (or for which human health criteria are the only applicable criteria) could potentially incur compliance costs. The types of affected facilities could include industrial facilities and POTWs discharging wastewater to surface waters (i.e., point sources). EPA did not attribute compliance with water quality-based effluent limitations (WQBELs) reflective of existing federal human health criteria applicable to Washington (hereafter referred to as "baseline criteria") to the final rule. Once in compliance

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with WQBELs reflective of baseline criteria, EPA expects that dischargers will continue to use the same types of controls to come into compliance with the revised criteria; EPA did not fully evaluate the potential for costs to nonpoint sources,[69] such as agricultural runoff, that could be incurred under a TMDL for this analysis, but did analyze the administrative costs to the state of preparing TMDLs for potentially incrementally impaired waters. Actual costs of implementation of TMDLs is beyond the scope of this analysis.

A. Identifying Affected Entities

EPA identified 406 point source facilities that could ultimately be affected by this final rule. Of these potentially affected facilities, 73 are major dischargers and 333 are minor dischargers. EPA did not include general permit facilities in its analysis because data for such facilities are limited, and flows are usually negligible. Of the potentially affected facilities, EPA evaluated a sample of 17 major facilities. Minor facilities are unlikely to incur costs as a result of implementation of the rule, because minor facilities are typically those that do not discharge toxics in toxic amounts and discharge less than 1 million gallons per day (mgd). Although lower

[69] The CWA does not regulate nonpoint sources. However, EPA recognizes that the state may require controls for nonpoint sources as part of potential incremental TMDLs. It is difficult to model and evaluate the potential cost impacts of this final rule to nonpoint sources because they are intermittent, variable, and occur under hydrologic or climatic conditions associated with precipitation events. Also, data on instream and discharge levels of the pollutants of concern after dischargers have implemented controls to meet current WQS, total maximum daily loads (TMDLs) for impaired waters, or other water quality improvement plans, are not available. Therefore, trying to determine which sources would not achieve WQS based on the revised human health criteria after complying with existing regulations and policies may not be possible. In addition, legacy contamination (e.g., in sediment) may be a source of ongoing loading. Atmospheric deposition may also contribute loadings of the pollutants of concern (e.g., mercury). EPA did not estimate sediment remediation costs, or air pollution controls costs, for this analysis because EPA did not have data on the contribution of these sources, and because control costs for deposition may be covered by Clean Air Act rules.

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human health criteria could potentially change this categorization, EPA did not have effluent data on toxic pollutants to evaluate minor facilities for this analysis. Table 2 summarizes these potentially affected facilities by type and category.

Table 2. Potentially Affected Facilities

Category	Minor	Major	All
Municipal	184	48	232
Industrial	149	25	174
Total	**333**	**73**	**406**

B. Method for Estimating Costs

EPA evaluated the two major municipal facilities with design flows greater than 100 mgd and a large industrial refinery, to attempt to capture the facilities with the potential for the largest costs. For the remaining major facilities, EPA evaluated a random sample of facilities to represent discharger type and category. For all sample facilities, EPA evaluated existing baseline permit conditions, reasonable potential to exceed human health criteria based on the final rule, and potential to exceed projected effluent limitations based on the last three years of effluent monitoring data (if available). In instances of exceedances of projected effluent limitations under the final criteria, EPA determined the likely compliance scenarios and costs. Only compliance actions and costs that would be needed above the baseline level of controls are attributable to the final rule.

EPA assumed that dischargers will pursue the least cost means of compliance with WQBELs. Incremental compliance actions attributable to the final rule may include pollution

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prevention, end-of-pipe treatment, and alternative compliance mechanisms (e.g., variances). EPA annualized one-time costs (capital costs and variance costs) over 20 years using a 3 percent discount rate to obtain total annual costs per facility. For the random sample, EPA extrapolated the annualized costs based on the sampling weight for each sample facility. To obtain an estimate of total costs to point sources, EPA added the results for the certainty sample to the extrapolated random sample costs.

C. Results

Based on the results for 17 sample facilities across 8 industrial and municipal categories,[70] EPA estimated a total annual compliance cost of approximately $126,000 to $150,000 for all major dischargers in the state (using a 3 percent discount rate). Only five facilities are estimated to incur pollution prevention program costs, while two facilities are expected to also incur costs of obtaining a variance. Most of the facilities would not bear any cost. The low end of the range reflects the assumption that the compliance actions (e.g., pollution prevention) will result in compliance with projected effluent limits, whereas the high scenario reflects projected effluent limits not being met, and thus includes the estimated administrative cost of also obtaining a variance. All compliance costs are for industrial facilities, and are attributable to the human health criterion for methylmercury.

[70] Seven industrial categories (mining, food and kindred products, paper and allied products, chemicals and allied products, petroleum refining and related industries, primary metal industries, and transportation and public utilities (except POTWs)) and municipal POTWs.

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If the revised criteria result in an incremental increase in impaired waters, resulting in the need for TMDL development, there could also be some costs to nonpoint sources of pollution. Using available ambient monitoring data, EPA compared pollutant concentrations to the baseline and final criteria, identifying waterbodies that may be incrementally impaired (i.e., impaired under the final criteria but not under the baseline). For the parameters and stations for which EPA had sufficient monitoring data available to evaluate, there were 50 impairments under the baseline criteria and 124 under the final criteria, for a total of 74 potential incremental impairments (or a 148 percent increase relative to the baseline; including for methylmercury, PCBs, and DDT). This increase indicates the potential for nonpoint sources to bear some compliance costs, although data are not available to estimate the magnitude of these costs. The control of nonpoint sources such as in the context of a TMDL could result in different requirements, and thus different costs, for point sources.

If the net increase in potential impairments is any indication of the potential increase in the number of TMDLs, then the total administrative costs for TMDL development could be in the range of $2.7 million to $3.0 million based on national average single-cause single-waterbody TMDL development costs from U.S. EPA (2001; updated to 2014 dollars). However, these costs may be reduced if Ecology develops multi-cause or multi-waterbody TMDLs. If these costs are spread over 8 to 15 years, at a discount rate of 3 percent, the annualized costs of developing TMDLs are $229,000 to $422,000.

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Combining the potential facility compliance costs and TMDL administrative costs results in total annual costs of $355,000 to $572,000, at a 3 percent discount rate.

V. Statutory and Executive Order Reviews

A. Executive Order 12866 (Regulatory Planning and Review) and Executive Order 13563 (Improving Regulation and Regulatory Review)

It has been determined that this final rule is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is, therefore, not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011). The final rule does not establish any requirements directly applicable to regulated entities or other sources of toxic pollutants. However, these WQS may serve as a basis for development of NPDES permit limits. Washington has NPDES permitting authority, and retains considerable discretion in implementing standards. In the spirit of Executive Order 12866, EPA evaluated the potential costs to NPDES dischargers associated with state implementation of EPA's final criteria. This analysis, *Final Economic Analysis for the Revision of Certain Federal Water Quality Criteria Applicable to Washington*, is summarized in section IV of the preamble and is available in the docket.

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B. Paperwork Reduction Act

This action does not impose any direct new information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq*. Actions to implement these WQS could entail additional paperwork burden. Burden is defined at 5 CFR 1320.3(b). This action does not include any information collection, reporting, or record-keeping requirements.

C. Regulatory Flexibility Act

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. EPA has the authority to promulgate WQS in any case where the Administrator determines that a new or revised standard is necessary to meet the requirements of the CWA. EPA-promulgated standards are implemented through various water quality control programs including the NPDES program, which limits discharges to navigable waters except in compliance with an NPDES permit. The CWA requires that all NPDES permits include any limits on discharges that are necessary to meet applicable WQS. Thus, under the CWA, EPA's promulgation of WQS establishes standards that the state implements through the NPDES permit process. The state has discretion in developing discharge limits, as needed to meet the standards. As a result of this action, the State of Washington will need to ensure that permits it issues include any limitations on discharges necessary to comply with the standards established in the final rule. In doing so, the state will have a number of choices associated with permit writing. While Washington's implementation of the rule may ultimately result in new or revised permit

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conditions for some dischargers, including small entities, EPA's action, by itself, does not impose any of these requirements on small entities; that is, these requirements are not self-implementing.

D. Unfunded Mandates Reform Act

This action contains no federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531-1538 for state, local, or tribal governments or the private sector. As these water quality criteria are not self-implementing, EPA's action imposes no enforceable duty on any state, local or tribal governments or the private sector. Therefore, this action is not subject to the requirements of sections 202 or 205 of UMRA.

This action is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that could significantly or uniquely affect small governments.

E. Executive Order 13132 (Federalism)

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. This rule does not alter Washington's considerable discretion in implementing these WQS, nor will it preclude Washington from adopting WQS in the future that EPA concludes meet the requirements of the CWA, which will eliminate the need for federal standards. Thus, Executive Order 13132 does not apply to this action.

F. Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments)

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This action has tribal implications. However, it will neither impose substantial direct compliance costs on federally recognized tribal governments, nor preempt tribal law. In the State of Washington, there are 29 federally recognized Indian tribes. To date, nine of these Indian tribes have been approved for TAS for CWA sections 303 and 401.[71] Of these nine tribes, seven have EPA-approved WQS in their respective jurisdictions.[72] This rule could affect federally recognized Indian tribes in Washington because the numeric criteria for Washington will apply to waters adjacent to (or upstream or downstream of) the tribal waters, where many of those tribes have treaty rights to take fish for their subsistence. Additionally, there are ten federally recognized Indian tribes in the Columbia River Basin located in the states of Oregon and Idaho that this rule could impact because their waters could affect or be affected by the water quality of Washington's downstream or upstream waters.

EPA consulted with federally recognized tribal officials under EPA's Policy on Consultation and Coordination with Indian Tribes early in the process of developing this rule to permit them to have meaningful and timely input into its development. In February and March 2015, EPA held tribes-only technical staff and leadership consultation sessions to hear their views and answer questions of all interested tribes on

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[71] http://water.epa.gov/scitech/swguidance/standards/wqslibrary/approvtable.cfm.

[72] http://yosemite.epa.gov/r10/water.nsf/34090d07b77d50bd88256b79006529e8/dd2a4df00fd7ae1a88256e0500680e86!OpenDocument. Note that this number does not include the Confederated Tribes of the Colville Reservation, which has federally promulgated WQS from 1989. EPA is currently reviewing the Colville Tribe's application for TAS.

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the proposed rule. Representatives from approximately 23 tribes and four tribal consortia participated in two leadership meetings held in March 2015. EPA and tribes have also met regularly since November 2012 to discuss Washington's human health criteria at both the tribal leadership level and technical staff level. The tribes have repeatedly asked EPA to promulgate federal human health criteria for Washington if the state did not do so in a timely and protective manner. At these meetings, the tribes consistently emphasized that the human health criteria should be derived using at least a minimum FCR value of 175 g/day, a cancer risk level of 10^{-6}, and the latest scientific information from EPA's 304(a) recommended criteria. EPA considered the input received during consultation with tribes when developing this final rule (see section III for additional discussion of how EPA considered tribal input).

In subsequent coordination with tribes, EPA received a letter on August 5, 2016, from the Northwest Indian Fisheries Commission disagreeing with EPA's potential adjustments to the RSC from the proposed rule issued on September 14, 2015 to the final rule as a result of public comments. The tribes expressed concern that less stringent human health criteria as a result of the RSC adjustment would result in lower protection of designated uses and limit the ability to exercise tribal treaty rights, especially in light of a FCR that underestimates tribal consumption. EPA considered this information carefully before finalizing this rule, but for the reasons stated above, decided to adjust the RSC to account for inclusion of some marine fish in the FCR. This results in protective

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criteria that account for other routes of exposure in addition to drinking water and fish and shellfish from inland and nearshore waters and is consistent with EPA's guidance.

G. Executive Order 13045 (Protection of Children from Environmental Health and Safety Risks)

This rule is not subject to Executive Order 13045, because it is not economically significant as defined in Executive Order 12866, and because the environmental health or safety risks addressed by this action do not present a disproportionate risk to children.

H. Executive Order 13211 (Actions that Significantly Affect Energy Supply, Distribution, or Use)

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

I. National Technology Transfer and Advancement Act of 1995

This final rulemaking does not involve technical standards.

J. Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)

This action will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations. Conversely, this action identifies and ameliorates disproportionately high and adverse human health effects on minority populations and low-income populations in Washington. EPA developed the human health criteria included in this final rule specifically to protect Washington's designated uses, using the most current science, including local and regional information on fish consumption. Applying

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these criteria to waters in the State of Washington will afford a greater level of protection to both human health and the environment.

K. Congressional Review Act (CRA)

This action is subject to the CRA, and EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

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List of Subjects in 40 CFR Part 131

Environmental protection, Indians-lands, Intergovernmental relations, Reporting and recordkeeping requirements, Water pollution control.

Dated:_____.

_____

Gina McCarthy,

Administrator.

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For the reasons set forth in the preamble, EPA amends 40 CFR part 131 as follows:

PART 131—WATER QUALITY STANDARDS

1. The authority citation for part 131 continues to read as follows:

Authority: 33 U.S.C. 1251 *et seq.*

Subpart D—Federally Promulgated Water Quality Standards

§ 131.36 [Amended]

2. In §131.36, remove paragraph (d)(14).

3. Add §131.45 to read as follows:

§ 131.45 Revision of certain Federal water quality criteria applicable to Washington.

(a) *Scope*. This section promulgates human health criteria for priority toxic pollutants in surface waters in Washington.

(b) *Criteria for priority toxic pollutants in Washington*. The applicable human health criteria are shown in Table 1.

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Table 1. Human Health Criteria for Washington									
	A		B					C	
	Chemical	CAS Number	Cancer Slope Factor, CSF (per mg/kg·d) (B1)	Relative Source Contribution, RSC (-) (B2)	Reference Dose, RfD (mg/kg·d) (B3)	Bio-accumulation Factor (L/kg tissue) (B4)	Bio-concentration Factor (L/kg tissue) (B5)	Water & Organisms (µg/L) (C1)	Organisms Only (µg/L) (C2)
1	1,1,1-Trichloroethane	71556	-	0.50	2	10	-	20,000	50,000
2	1,1,2,2-Tetrachloroethane	79345	0.2	-	-	8.4	-	0.1	0.3
3	1,1,2-Trichloroethane	79005	0.057	-	-	8.9	-	0.35	0.90
4	1,1-Dichloroethylene	75354	-	0.50	0.05	2.6	-	700	4,000
5	1,2,4-Trichlorobenzene	120821	0.029	-	-	430	-	0.036	0.037
6	1,2-Dichlorobenzene	95501	-	0.50	0.3	82	-	700	800
7	1,2-Dichloroethane	107062	0.0033	-	-	1.9	-	8.9	73
8	1,2-Dichloropropane	78875	-	-	-	-	-	-	-
9	1,2-Diphenylhydrazine	122667	0.8	-	-	27	-	0.01	0.02
10	1,2-Trans-Dichloroethylene	156605	-	0.50	0.02	4.7	-	200	1,000
11	1,3-Dichlorobenzene	541731	-	0.50	0.002	190	-	2	2
12	1,3-Dichloropropene	542756	0.122	-	-	3.0	-	0.22	1.2
13	1,4-Dichlorobenzene	106467	-	0.50	0.07	84	-	200	200
14	2,3,7,8-TCDD (Dioxin)**	1746016	156,000	-	-	-	5,000	1.3E-08	1.4E-08
15	2,4,6-Trichlorophenol	88062	-	-	-	-	-	-	-
16	2,4-Dichlorophenol	120832	-	0.50	0.003	48	-	10	10
17	2,4-Dimethylphenol	105679	-	-	-	-	-	-	-
18	2,4-Dinitrophenol	51285	-	0.50	0.002	4.4	-	30	100
19	2,4-Dinitrotoluene	121142	-	-	-	-	-	-	-
20	2-Chloronaphthalene	91587	-	0.80	0.08	240	-	100	100
21	2-Chlorophenol	95578	-	-	-	-	-	-	-
22	2-Methyl-4,6-Dinitrophenol	534521	-	0.50	0.0003	10	-	3	7
23	3,3'-Dichlorobenzidine	91941	-	-	-	-	-	-	-
24	3-Methyl-4-Chlorophenol	59507	-	-	-	-	-	-	-
25	4,4'-DDD	72548	0.24	-	-	240,000	-	7.9E-06	7.9E-06
26	4,4'-DDE	72559	0.167	-	-	3,100,000	-	8.8E-07	8.8E-07
27	4,4'-DDT	50293	0.34	-	-	1,100,000	-	1.2E-06	1.2E-06
28	Acenaphthene	83329	-	0.50	0.06	510	-	30	30

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29	Acrolein	107028	-	-	-	-	-	-	-
30	Acrylonitrile	107131	-	-	-	-	-	-	-
31	Aldrin	309002	17	-	-	650,000	-	4.1E-08	4.1E-08
32	alpha-BHC	319846	6.3	-	-	1,500	-	4.8E-05	4.8E-05
33	alpha-Endosulfan	959988	-	0.50	0.006	200	-	6	7
34	Anthracene	120127	-	0.50	0.3	610	-	100	100
35	Antimony	7440360	-	0.50	0.0004	-	1	6	90
36	Arsenic**	7440382	1.75	-	-	-	44	[a]0.018	[a]0.14
37	Asbestos	1332214	-	-	-	-	-	-	-
38	Benzene	71432	-	-	-	-	-	-	-
39	Benzidine	92875	-	-	-	-	-	-	-
40	Benzo(a) Anthracene	56553	0.73	-	-	3,900	-	0.00016	0.00016
41	Benzo(a) Pyrene	50328	7.3	-	-	3,900	-	1.6E-05	1.6E-05
42	Benzo(b) Fluoranthene	205992	0.73	-	-	3,900	-	0.00016	0.00016
43	Benzo(k) Fluoranthene	207089	0.073	-	-	3,900	-	0.0016	0.0016
44	beta-BHC	319857	1.8	-	-	180	-	0.0013	0.0014
45	beta-Endosulfan	33213659	-	-	-	-	-	-	-
46	Bis(2-Chloroethyl) Ether	111444	-	-	-	-	-	-	-
47	Bis(2-Chloro-1-Methylethyl) Ether*	108601	-	0.50	0.04	10	-	400	900
48	Bis(2-Ethylhexyl) Phthalate	117817	0.014	-	-	710	-	0.045	0.046
49	Bromoform	75252	0.0045	-	-	8.5	-	4.6	12
50	Butylbenzyl Phthalate	85687	0.0019	-	-	19,000	-	0.013	0.013
51	Carbon Tetrachloride	56235	-	-	-	-	-	-	-
52	Chlordane	57749	0.35	-	-	60,000	-	2.2E-05	2.2E-05
53	Chlorobenzene	108907	-	0.50	0.02	22	-	100	200
54	Chlorodibromomethane	124481	0.04	-	-	5.3	-	0.60	2.2
55	Chloroform	67663	-	0.50	0.01	3.8	-	100	600
56	Chrysene	218019	0.0073	-	-	3,900	-	0.016	0.016
57	Copper	7440508	-	-	-	-	-	-	-
58	Cyanide	57125	-	0.50	0.0006	-	1	9	100
59	Dibenzo(a,h) Anthracene	53703	7.3	-	-	3,900	-	1.6E-05	1.6E-05
60	Dichlorobromomethane	75274	0.034	-	-	4.8	-	0.73	2.8
61	Dieldrin	60571	16	-	-	410,000	-	7.0E-08	7.0E-08
62	Diethyl Phthalate	84662	-	0.50	0.8	920	-	200	200
63	Dimethyl Phthalate	131113	-	0.50	10	4,000	-	600	600

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64	Di-n-Butyl Phthalate	84742	-	0.50	0.1	2,900	-	8	8
65	Endosulfan Sulfate	1031078	-	0.50	0.006	140	-	9	-
66	Endrin	72208	-	0.80	0.0003	46,000	-	0.002	0.002
67	Endrin Aldehyde	7421934	-	-	-	-	-	-	-
68	Ethylbenzene	100414	-	0.50	0.022	160	-	29	31
69	Fluoranthene	206440	-	0.50	0.04	1,500	-	6	6
70	Fluorene	86737	-	0.50	0.04	710	-	10	10
71	gamma-BHC; Lindane	58899	-	0.50	0.0047	2,500	-	0.43	0.43
72	Heptachlor	76448	4.1	-	-	330,000	-	3.4E-07	3.4E-07
73	Heptachlor Epoxide	1024573	5.5	-	-	35,000	-	2.4E-06	2.4E-06
74	Hexachlorobenzene	118741	1.02	-	-	90,000	-	5.0E-06	5.0E-06
75	Hexachlorobutadiene	87683	0.04	-	-	1,100	-	0.01	0.01
76	Hexachlorocyclopentadiene	77474	-	0.50	0.006	1,300	-	1	1
77	Hexachloroethane	67721	0.04	-	-	600	-	0.02	0.02
78	Indeno(1,2,3-cd) Pyrene	193395	0.73	-	-	3,900	-	0.00016	0.00016
79	Isophorone	78591	-	-	-	-	-	-	-
80	Methyl Bromide	74839	-	0.50	0.02	1.4	-	300	-
81	Methylene Chloride	75092	0.002	-	-	1.6	-	10	100
82	Methylmercury	22967926	-	2.7E-05	0.0001	-	-	-	[b]0.03 (mg/kg)
83	Nickel	7440020	-	0.50	0.02	-	47	80	100
84	Nitrobenzene	98953	-	0.50	0.002	3.1	-	30	100
85	N-Nitrosodimethylamine	62759	-	-	-	-	-	-	-
86	N-Nitrosodi-n-Propylamine	621647	-	-	-	-	-	-	-
87	N-Nitrosodiphenylamine	86306	-	-	-	-	-	-	-
88	Pentachlorophenol (PCP)	87865	0.4	-	-	520	-	0.002	0.002
89	Phenol	108952	-	0.50	0.6	1.9	-	9,000	70,000
90	Polychlorinated Biphenyls (PCBs)		2	-	-	-	31,200	[c]7E-06	[c]7E-06
91	Pyrene	129000	-	0.50	0.03	860	-	8	8
92	Selenium	7782492	-	0.50	0.005	-	4.8	60	200
93	Tetrachloroethylene	127184	0.0021	-	-	76	-	2.4	2.9
94	Thallium**	7440280	-	-	0.000068	-	116	1.7	6.3
95	Toluene	108883	-	0.50	0.0097	17	-	72	130
96	Toxaphene	8001352	-	-	-	-	-	-	-
97	Trichloroethylene	79016	0.05	-	-	13	-	0.3	0.7

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98	Vinyl Chloride	75014	1.5	-	-	1.7	-	-	0.18
99	Zinc	7440666	-	0.50	0.3	-	47	1,000	1,000
[a]	This criterion refers to the inorganic form of arsenic only.								
[b]	This criterion is expressed as the fish tissue concentration of methylmercury (mg methylmercury/kg fish). See *Water Quality Criterion for the Protection of Human Health: Methylmercury* (EPA-823-R-01-001, January 3, 2001) for how this value is calculated using the criterion equation in EPA's 2000 Human Health Methodology rearranged to solve for a protective concentration in fish tissue rather than in water.								
[c]	This criterion applies to total PCBs (e.g., the sum of all congener or isomer or homolog or Aroclor analyses).								
*	Bis(2-Chloro-1-Methylethyl) Ether was previously listed as Bis(2-Chloroisopropyl) Ether.								
**	These criteria were promulgated for Washington in the National Toxics Rule at 40 CFR 131.36, and are moved into 40 CFR 131.45 to have one comprehensive human health criteria rule for Washington.								

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(c) *Applicability*. (1) The criteria in paragraph (b) of this section apply to waters with Washington's designated uses cited in paragraph (d) of this section and apply concurrently with other applicable water quality criteria.

(2) The criteria established in this section are subject to Washington's general rules of applicability in the same way and to the same extent as are other federally promulgated and state-adopted numeric criteria when applied to the same use classifications in paragraph (d) of this section.

(i) For all waters with mixing zone regulations or implementation procedures, the criteria apply at the appropriate locations within or at the boundary of the mixing zones; otherwise the criteria apply throughout the waterbody including at the end of any discharge pipe, conveyance or other discharge point within the waterbody.

(ii) The state must not use a low flow value below which numeric non-carcinogen and carcinogen human health criteria can be exceeded that is less stringent than the harmonic mean flow for waters suitable for the establishment of low flow return frequencies (i.e., streams and rivers). Harmonic mean flow is a long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows.

(iii) If the state does not have such a low flow value for numeric criteria, then none will apply and the criteria in paragraph (b) of this section herein apply at all flows.

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(d) *Applicable use designations*. (1) All waters in Washington assigned to the following use classifications are subject to the criteria identified in paragraph (d)(2) of this section:

(i) Fresh waters—

(A) Miscellaneous uses: Harvesting (Fish harvesting);

(B) Recreational uses;

(C) Water supply uses: Domestic water (Domestic water supply);

(ii) Marine waters—

(A) Miscellaneous uses: Harvesting (Salmonid and other fish harvesting, and crustacean and other shellfish (crabs, shrimp, scallops, etc.) harvesting);

(B) Recreational uses;

(C) Shellfish harvesting: Shellfish harvest (Shellfish (clam, oyster, and mussel) harvesting)

Note to paragraph (d)(1): The source of these uses is Washington Administrative Code 173-201A-600 for Fresh waters and 173-201A-610 for Marine waters.

(2) For Washington waters that include the use classification of Domestic Water, the criteria in column C1 and the methylmercury criterion in column C2 of Table 1 in paragraph (b) of this section apply. For Washington waters that include any of the following use classifications but do not include the use classification of Domestic Water, the criteria in column C2 of Table 1 in paragraph (b) of this section apply: Harvesting (fresh and marine waters), Recreational Uses (fresh and marine waters), and Shellfish Harvesting.

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