

Water Quality Standards: Background and Implications for Tribal Health, Resources, and Rights

Catherine O'Neill

professorcatherineoneill@gmail.com

Principal, O'Neill Consulting

Environmental Scholar and Adjunct Professor of Law, Lewis & Clark Law School

Overview

A. Introduction

B. Water Quality Standards (WQS) Background

C. Exposure Science Supports More Protective WQS

D. WQS in the Pacific Northwest

E. Reframing Exposure Assessment

A. Introduction – Harvest Currently Burdened



Harvest, including tribal harvest, is now burdened by contamination and depletion of the fish resource

Many of the same contaminants that cause morbidity and mortality to fish also cause harm to humans and other piscivorous species



Fish consumption is the **primary** way people are exposed to a host of toxic contaminants, including PCBs and mercury (Hg), that are present in the environment

A. Introduction – Two Responses

Risk Reduction

- Targets the *sources* of risk
- Requires polluters to prevent, reduce, or clean up toxic contaminants
- Examples: bans on chemical manufacture; water quality standards limiting discharge; cleanup and restoration of contaminated sediments and waters

Risk Avoidance

- Targets the human *receptors* of risk
- Shifts burden to the people exposed → asks them to avoid contamination by altering their practices or lifeways
- Examples: **fish consumption advisories**; shellfish closures; no contact warnings; boil water notices

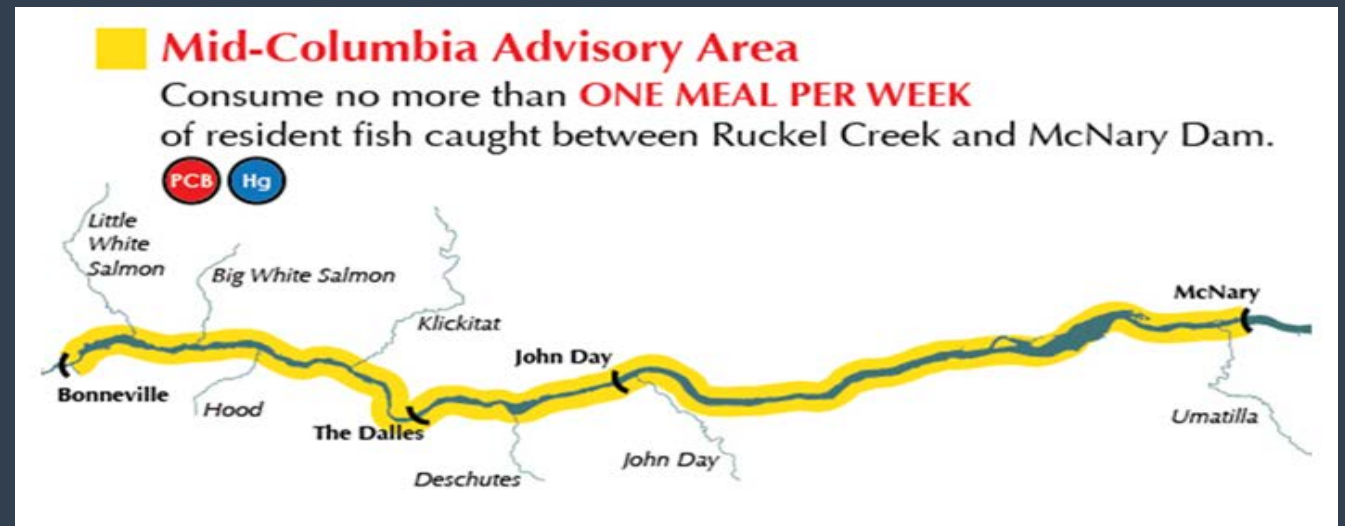
Fish Consumption Advisories



Puget Sound Crab Advice:

Data have shown that crabs from industrial urban areas may contain more contaminants than those from non-urban areas, and that crab butter (viscera) has more contaminants than crab muscle.

DOH recommends that you consume Dungeness and red rock crab from non-urban areas and that you do not eat the crab butter. If you cook crab in boiled water do not use the water for soup stock, broth, or gravy.



B. Water Quality Standards (WQS) Background

Clean Water Act (CWA)

The CWA's purpose is “to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.”

33 U.S.C. § 1251(a)

To this end, the CWA provides that “the discharge of toxic pollutants in toxic amounts be prohibited,” and that “water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water, be achieved.”

33 U.S.C. § 1251(a)(2) and (3)

B. WQS Background

CWA's goal of “fishable/swimmable” waters

- Includes ensuring conditions that support reproduction and survival of fish in their various lifestages
- “[N]ecessarily includes ensuring that fish are not so contaminated that they are unhealthful for human consumption”

See, e.g., Idaho Mining Ass'n v. Browner, 90 F. Supp. 2d 1078, 1089 (D. Idaho, 2000)



B. WQS Background

Water quality standards are comprised of:

- (1) “**uses**” that the water body supports or should support;
- (2) “**criteria**” that are designed to protect these uses; and
- (3) “anti-degradation” policies that ensure that designated and existing uses continue to be supported

B. WQS Background

(1) “**uses**” that the water body supports or should support;

Examples:

Spokane Tribe of Indians, Surface Water Quality Standards § 9(b):

“primary contact ceremonial and spiritual; cultural; water supply (domestic, industrial, agricultural); stock watering; fish and shellfish, including ... salmonid migration, rearing, spawning, and harvesting; ...”

B. WQS Background

(2) “**criteria**” that are designed to protect these uses;

Examples: **human health criteria (HHC)**; aquatic life criteria

40 C.F.R. § 131.11:

“must be based on sound scientific rationale,” and

“must contain sufficient parameters or constituents to protect the designated use”

B. WQS Background

EPA contemplates that multiple relevant “uses” may apply to particular waters (e.g., a river may support salmonids’ water quality needs at their different life stages, including spawning, rearing, and migration; human harvest of various fish species and aquatic resources; human recreation in and on the surface water; wildlife habitat; etc.)

EPA regulations require that “the **criteria shall support the most sensitive use**”

40 C.F.R. § 131.11



Photo credit: The Yakima Herald

B. WQS Background



WQS are the linchpin for several regulatory efforts:

- Basis for sources' permit limits under National Pollutant Discharge Elimination System (NPDES)
- Touchstone for identifying "impaired waters," which is spur to development of "total maximum daily loads" (TMDLs)
- Basis for "certification" under CWA § 401 that federally licensed or permitted projects will comply
- Constitute "Applicable or Relevant and Appropriate Requirements (ARARs)" under CERCLA

B. WQS Background

CWA 303 (c)(2)-(4)(A)

- requires states/tribes to submit WQS to EPA for approval or disapproval, and requires EPA to issue WQS for a state/tribe if the state/tribe fails to make the necessary changes to obtain approval within the statutorily specified window, i.e., 90 days after getting EPA notice

CWA 303(c)(4)(B)

- directs EPA to issue water quality standards itself on states'/tribes' behalf "in any case where the Administrator determines that a revised or new standard is necessary to meet the requirements of [the CWA]."

B. WQS: Human Health Criteria Equations

Equation 1:

$$\textit{Risk} = \textit{Toxicity} \times \textit{Exposure}$$

Equation 2:

$$\textit{Exposure} = \frac{(\textit{Contaminant Concentration})(\textit{Bioaccumulation Factor})(\textit{FCR})(\textit{Exposure Duration})}{(\textit{Bodyweight})(\textit{Averaging Time})}$$

B. WQS: Human Health Criteria Equations

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B. WQS: National Toxics Rule

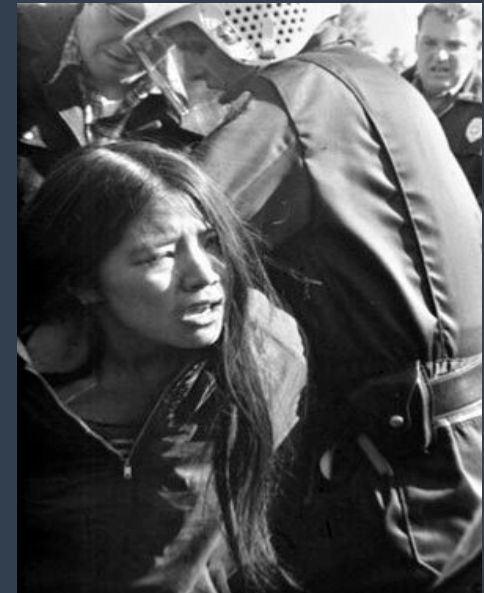
Washington among states for which WQS issued by EPA in “National Toxics Rule” (NTR)

57 Fed. Reg. 60,848 (Dec. 22, 1992)

NTR: national default **FCR of 6.5 grams/day**
= about **1 fish meal/month**

- data from tuna industry survey in 1973-74
- average per capita intake (fish consumers and non-consumers)
- freshwater and estuarine species only (salmon and marine species excluded)

FCR of 6.5 g/day thus functions as **ceiling on safe consumption**

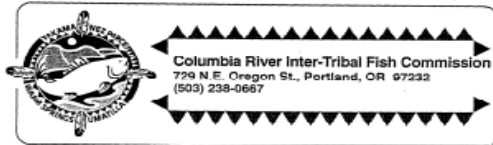


C. Exposure Science: Fish Consumption Data

A FISH CONSUMPTION SURVEY OF THE
UMATILLA, NEZ PERCE, YAKAMA, AND
WARM SPRINGS TRIBES OF THE
COLUMBIA RIVER BASIN

Technical Report 94-3

October, 1994



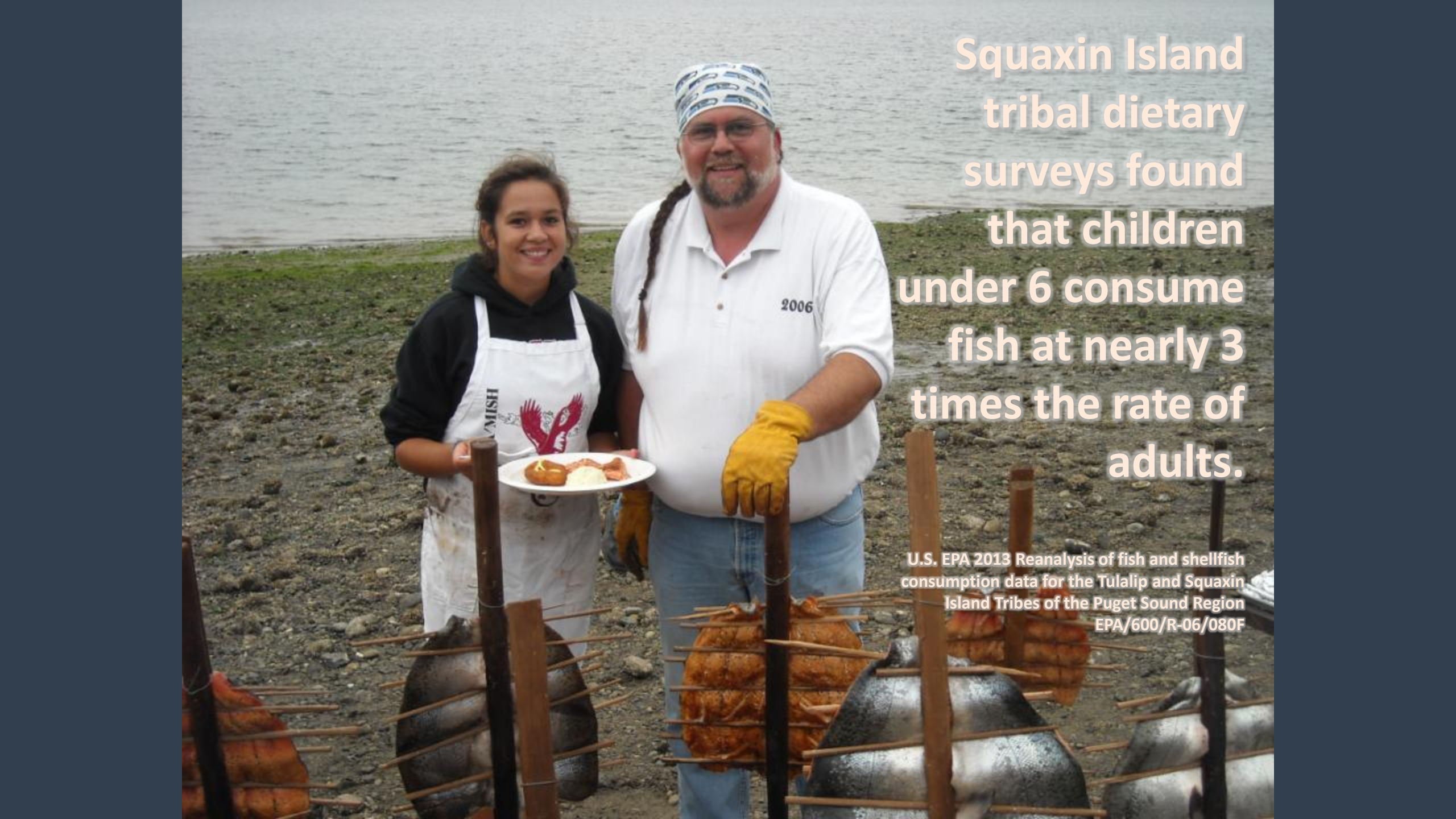
COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION, A FISH CONSUMPTION SURVEY OF THE UMATILLA, NEZ PERCE, YAKAMA, AND WARM SPRINGS TRIBES OF THE COLUMBIA RIVER BASIN (1994)

EPA and state agencies defended use of 6.5 grams/day default FCR by arguing that they had only “anecdotal evidence” of higher tribal fish intake rates, which was “speculative at best;” and that “no definitive study has established the quantity and variety of contaminated fish consumed” by affected tribes or other highly exposed groups

See, e.g., Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995), *Natural Resources Defense Council v. EPA*, 16 F.3d 1395 (4th Cir. 1993)

C. Exposure Science: Fish Consumption Data

| Surveyed Population (Date) | Fish Consumption at Descriptive Percentiles (grams/day) | | | | | |
|--------------------------------|---|------------------|------------------|------------------|------------------|---------|
| | Mean | 50 th | 90 th | 95 th | 99 th | Maximum |
| CRITFC Tribes (1994) | 63 | 40 | 113 | 176 | 389 | 972 |
| Squaxin Island Tribe (1996) | 73 | 43 | 193 | 247 | -- | -- |
| Tulalip Tribe (1996) | 72 | 45 | 186 | 244 | 312 | -- |
| Suquamish Tribe (2000) | 214 | 132 | 489 | 796 | -- | 1453 |
| Lummi Nation (2012) | 383 | 314 | 800 | 918 | -- | -- |
| Asian/Pacific Islanders (1999) | 117 | 78 | 236 | 306 | --- | --- |

A photograph of a man and a woman standing on a beach. The man, on the right, is wearing a white polo shirt with '2006' on the chest, blue jeans, a blue and white patterned headband, and yellow gloves. He has a beard and a braid. The woman, on the left, is wearing a black hoodie and a white apron with a red fish logo and the word 'FISH' visible. She is holding a white plate with food. In the foreground, several large fish are skewered on wooden sticks and are being cooked over a fire. The background shows a body of water and a rocky shore.

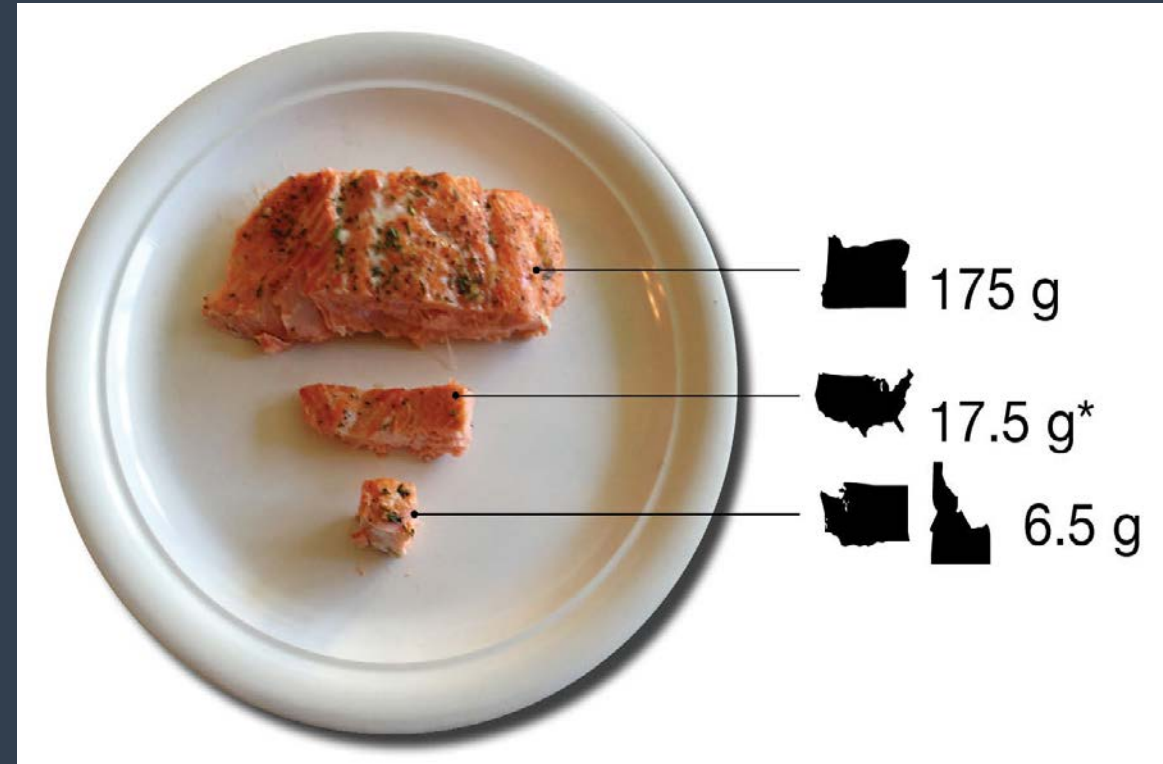
Squaxin Island
tribal dietary
surveys found
that children
under 6 consume
fish at nearly 3
times the rate of
adults.

U.S. EPA 2013 Reanalysis of fish and shellfish
consumption data for the Tulalip and Squaxin
Island Tribes of the Puget Sound Region
EPA/600/R-06/080F

C. Exposure Science Supports Increased FCRs

FCRs assumed by various jurisdictions:

| | |
|------------|--|
| 6.5 g/day | ID (now effectively 6.6 g/d) WA, formerly |
| 17.5 g/day | US (now 22 g/d) |
| 175 g/day | OR; WA (with caveats) |
| 389 g/day | Umatilla Tribes |
| 865 g/day | Spokane Tribe |



C. Exposure Science: “Suppression Effect”

November 2002 (revised)

FISH CONSUMPTION AND ENVIRONMENTAL JUSTICE

A Report developed from the National Environmental Justice Advisory Council Meeting of December 3-6, 2001



A Federal Advisory Committee to the U.S. Environmental Protection Agency

“A ‘**suppression effect**’ occurs when a fish consumption rate (FCR) for a given population, group, or tribe reflects a **current level of consumption that is artificially diminished** from an appropriate baseline level of consumption for that population, group, or tribe. The more robust baseline level of consumption is suppressed, inasmuch as it does not get captured by the FCR.”

NATIONAL ENVIRONMENTAL JUSTICE ADVISORY
COUNCIL, FISH CONSUMPTION AND
ENVIRONMENTAL JUSTICE (2002)

C. Exposure Science: “Suppression Effect”



Suppression is a source of bias if *contemporary* FCR used

63.2 g/day [contemporary CRITFC; mean] vs. 620 g/day [*U.S. v. Washington*]

C. Exposure Science: “Suppression Effect”

| | |
|------------|-----------------------|
| 454 g/day | Cayuse |
| 621 g/day | Umatilla |
| 621 g/day | Walla Walla |
| 746 g/day | Lummi |
| 746 g/day | Nooksack |
| 454 g/day | Clallam |
| 435 g/day | Puyallup |
| 435 g/day | Nisqually |
| 1000 g/day | Columbia River Tribes |
| 1000- | |
| 1500 g/day | Spokane |

*Average Values; Salmon only (except last two estimates)

Historical or “Heritage” Fish Consumption Rates*



D. WQS in the Pacific Northwest

1. Delay Updates to WQS

CWA § 303(c)(1) : requires states/tribes to conduct triennial review of their WQS; revise “as appropriate” to incorporate latest scientific knowledge

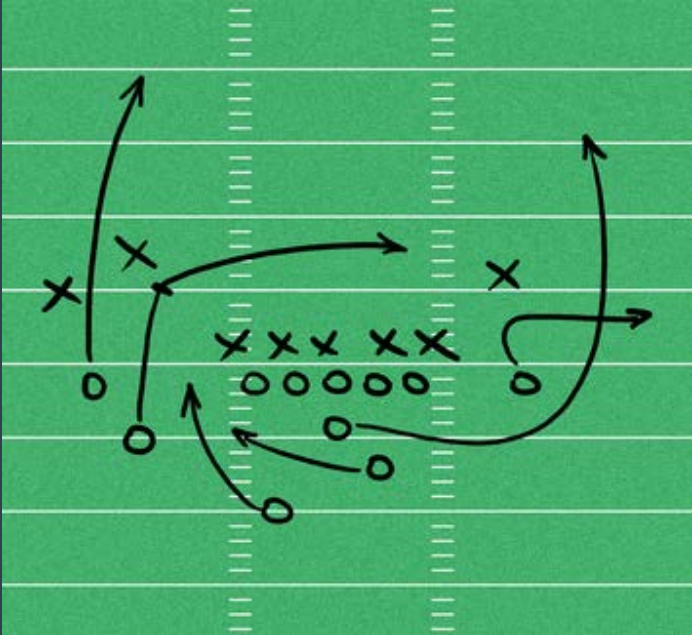
OR – 3 attempts; after extensive tri-governmental process (CTUIR, US EPA, OR), WQS approved in **2011** → 175 grams/day and 1×10^{-6} cancer risk

ID – multiple rounds; EPA disapproved IDEQ WQS in 2012; despite tribal opposition, WQS approved in **2019** → 66.5 grams/day and 1×10^{-5} cancer risk

WA – multiple “pivots” since 2010; Ecology WQS partially disapproved/approved by Obama EPA in 2016, largely revived by Trump EPA in **2020** but legal challenges → 175 grams/day and 1×10^{-6} cancer risk BUT caveats for contaminants of greatest concern (e.g., PCBs, dioxins, carcinogenic PAHs)



D. WQS in the Pacific Northwest



See, e.g., THOMAS O. MCGARITY, ET AL., SOPHISTICATED SABOTAGE: THE INTELLECTUAL GAMES USED TO SUBVERT RESPONSIBLE REGULATION (2004)

2. Question the Science

- Demand that tribal researchers “turn[] over” their “raw data” for “independent review”
- Question veracity of tribal respondents and scientific credibility of survey methods, e.g., “[a]pparently, the study authors never questioned whether these [high-consuming] respondents were truthful”
- Insist upon redundant reviews of tribal studies’ scientific defensibility (e.g., IDEQ’s review of Squaxin Island/Tulalip survey was *sixth* it had undergone by state/federal agencies)
- Argue that further fish consumption studies are needed, e.g., of general population in WA, ID

D. WQS in the Pacific Northwest

3. Sidestep the Science

Increase the FCR to reflect updated scientific data, BUT
Offset this more protective FCR **by deeming a tenfold greater cancer risk level to be “acceptable”**


$$Risk = Toxicity \times Exposure$$



$$Exposure = \frac{(Contaminant\ Concentration)(Bioaccumulation\ Factor)(FCR)(Exposure\ Duration)}{(Bodyweight)(Averaging\ Time)}$$

D. WQS in the Pacific Northwest

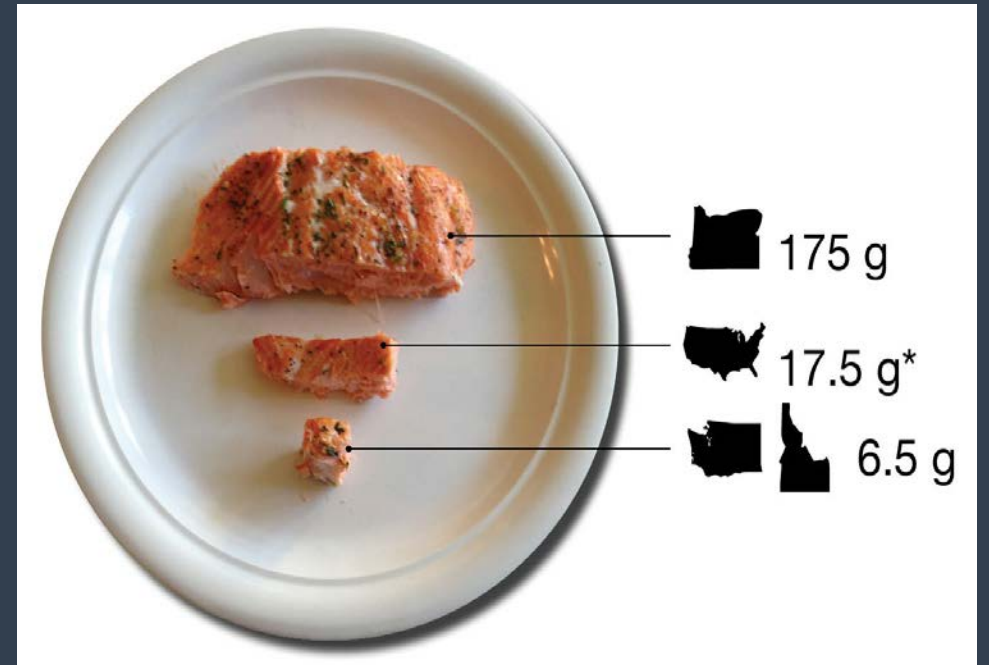
Impact of Adjusting Cancer Risk Level

From 1 in 1,000,000 (1×10^{-6}) *

To 1 in 100,000 (1×10^{-5})

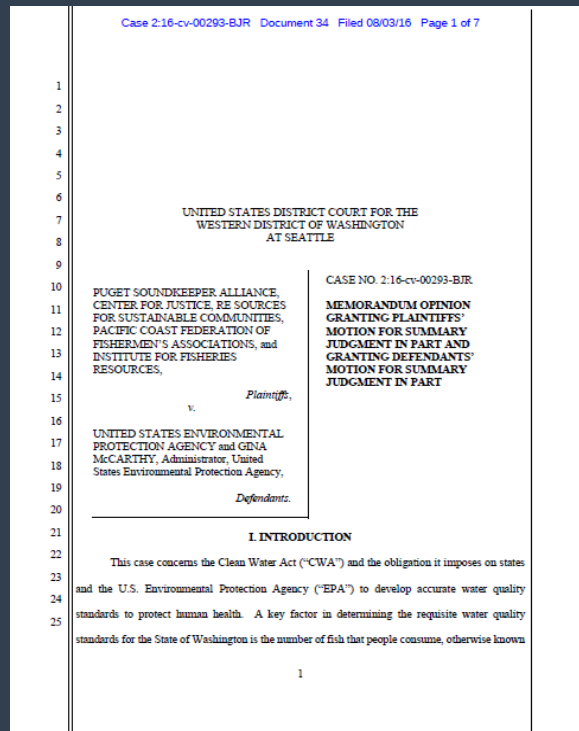
*longstanding WA risk level

WAC 173-201A-240(6)



175 g/day at 1×10^{-5} is tantamount to permitting safe consumption of just **17.5 g/day** at longstanding risk level

D. WQS in the Pacific Northwest: Washington



- July, 2015: Gov. Inslee directs Ecology to withdraw proposed rule
- Sept., 2015: EPA makes “determination;” invokes authority under CWA 303(c)(4)(B) to propose WQS for WA; says won’t finalize if state comes through with its WQS
- Feb., 2016: Puget Soundkeeper, Center for Justice, Pacific Coast Federation of Fishermen’s Associations, etc. sue EPA to compel them to issue WQS for WA, given EPA’s Sept., 2015 CWA 303(c)(4)(B) “determination,” and the CWA’s deadlines

→ District court found EPA had non-discretionary duty under CWA to issue WQS within 90 days of determination

→ “[W]hen agency dereliction occurs, as it did here,” it is up to courts to supply a remedy

D. WQS in the Pacific Northwest: Washington

Periodic Table of Elements

Legend - click to find out more...

- H - gas
- Li - solid
- Br - liquid
- Fr - synthetic
- Non-Metals
- Transition Metals
- Rare Earth Metals
- Halogens
- Alkali Metals
- Alkaline Earth Metals
- Other Metals
- Inert Elements

Aug., 2016: Ecology finalizes WQS, submits to EPA

Nominally embraces 175 grams/day and 1×10^{-6} cancer risk level, **BUT**

- Exempts PCBs, dioxins, arsenic (through various means)
- Selectively updates other parameters in the risk assessment equation, generally using new scientific data only where these result in less protective WQS
- Declines action on Hg
- Expands menu of variances and other “implementation tools”

D. WQS in the Pacific Northwest: Washington

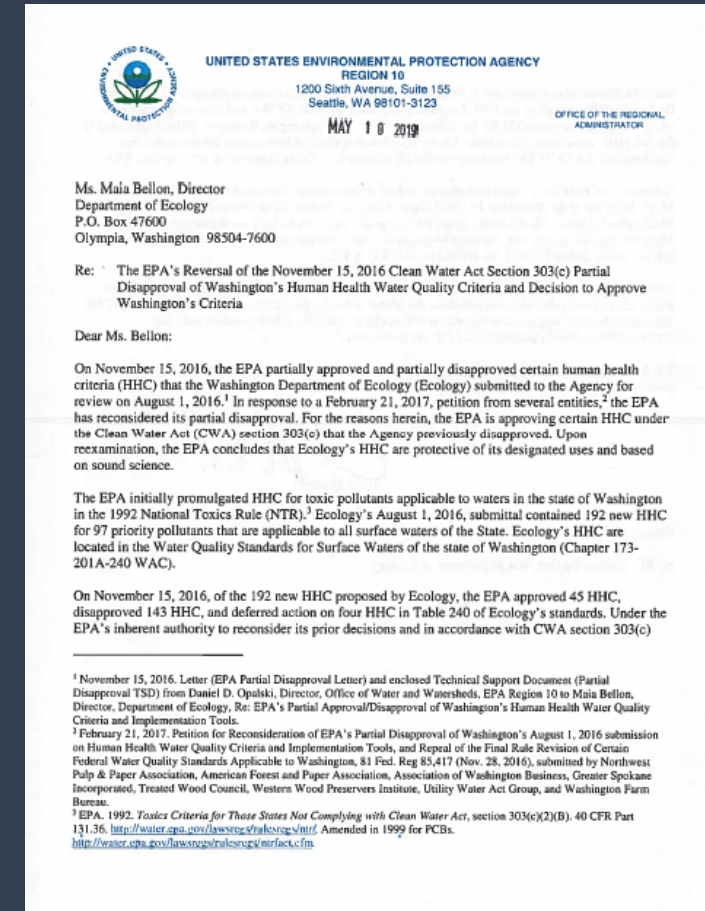
EPA partially approves/disapproves WA's submitted WQS, substitutes its own HHC where these are more protective **81 Fed. Reg. 85,417 (Nov. 28, 2016)**

= **“Consolidated Rule”**

- FCR is 175 g/day
- Cancer risk level is 1×10^{-6}
- PCBs, Hg updated to reflect these more protective inputs
- Recognizes tribes as a “target general population” to be protected
- “In order to effectuate and harmonize treaty-reserved fishing rights” with CWA, these “rights must be appropriately considered” when setting criteria to protect WA’s “designated uses”
- Recognizes need to consider “suppression,” although doesn’t claim 175 g/day is unsuppressed fish consumption rate

D. WQS in the Pacific Northwest: Washington

- Feb., 2017 – Industry petitions Trump EPA for reconsideration, pursuant to § 557 of the Administrative Procedures Act (APA)
- May, 2019 – EPA reverses course, unilaterally reviving and approving the WQS submitted by WA in Aug., 2016
 - “consultation” offered to tribes after the fact
- Aug., 2019 – proposed rule formally withdrawing EPA Nov., 2016 rule (Consolidated Rule), which EPA argues is no longer necessary in view of May, 2019 retroactive approval of WA’s WQS
- Oct., 2019 – tribes, NWIFC and others submit comments to rulemaking docket



Washington WQS as of January, 2021

| | |
|--|--|
| 28494 Federal Register / Vol. 85, No. 93 / Wednesday, May 13, 2020 / Rules and Regulations | |
| <p><i>wiley.adina@epa.gov</i>. Out of an abundance of caution for members of the public and our staff, the EPA Region 6 office will be closed to the public to reduce the risk of transmitting COVID-19. Please call or email the contact listed above if you need alternative access to material indexed but not provided in the docket.</p> <p>SUPPLEMENTARY INFORMATION: In FR doc. 2020-06160 at 85 FR 20178 in the issue of April 10, 2020, the following corrections are made:</p> <p>§52.1920 [Corrected]</p> <p>■ 1. On page 20181, in the second column, amendatory instruction a.ii. is corrected to read "Adding entries for "252.4-7-20", "252.4-17-1", "252.4-17-2", "252.4-17-3", "252.4-17-4", "252.4-17-5", "252.4-17-6", "252.4-17-7", "252.100-6-36.1"; and"</p> <p>■ 2. On the same page, in the third column, amendatory instruction b.i. is corrected to read "Amend the table titled "EPA-Approved Nonregulatory Provisions and Quasi-Regulatory Measures in the Oklahoma SIP" by adding a new entry at the end of the table for: "Letter to Ms. Anne Idsal, Regional Administrator, EPA Region 6, dated May 16, 2018 regarding "Clarification of PSD Public Participation Procedures under 2017 Revisions to the Oklahoma State Implementation Plan".</p> <p>■ 3. On the same page, in the same column, amendatory instruction b.ii. is corrected to read "Amend the table titled "EPA-Approved Statutes in the Oklahoma SIP" by adding new entries at the beginning of the table for "25 O.S. 304.22", "27A O.S. 2-6-112[D]", "27A O.S. 2-14-103", "27A O.S. 2-14-301", "27A O.S. 2-14-302", "27A O.S. 2-14-303", "27A O.S. 2-14-304", "51 O.S. 24A.3", "75 O.S. 302[B]", and "75 O.S. 303".</p> <p>Dated: April 29, 2020.</p> <p>Kashey McQueen, Regional Administrator, Region 6. [FR Doc. 2020-09230 Filed 5-11-20; 8:45 am] BILLING CODE 5550-55-P</p> | |
| <p>ENVIRONMENTAL PROTECTION AGENCY</p> <p>40 CFR Part 131</p> <p>[EPA-HQ-CW-2015-0174; FRL-10008-24-OW]</p> <p>RIN 2040-AP94</p> <p>Withdrawal of Certain Federal Water Quality Criteria Applicable to Washington</p> <p>AGENCY: Environmental Protection Agency (EPA).</p> <p>ACTION: Final rule.</p> <p>SUMMARY: The Environmental Protection Agency (EPA or Agency) is taking final action to amend the federal regulations to withdraw certain human health water quality criteria applicable to waters in the State of Washington. The EPA is taking this action because the State adopted, and the EPA approved, human health criteria that the Agency determined are protective of Washington's designated uses for its waters. In this action, the EPA is amending the federal regulations to withdraw those certain human health criteria applicable to Washington but promulgated by the Agency, as described in the August 6, 2019 proposed rule. The withdrawal will enable Washington to implement its EPA-approved human health criteria, submitted on August 1, 2016, and approved on May 10, 2019, as applicable criteria for Clean Water Act (CWA or the Act) purposes.</p> <p>DATES: This final rule is effective on June 12, 2020.</p> <p>ADDRESSES: The EPA has established a docket for this action identified by Docket ID No. EPA-HQ-CW-2015-0174, at https://www.regulations.gov. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at https://www.epa.gov/dockets.</p> <p>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.eric@epa.gov.</p> <p>SUPPLEMENTARY INFORMATION: This proposed rule is organized as follows:</p> <p>1. General Information</p> <p>Does this action apply to me?</p> | <p>A. Comments in Support of the EPA's Proposal To Withdraw the Federal HHC</p> <p>B. Comments in Opposition to the EPA's Proposal To Withdraw the Federal HHC</p> <p>C. Comments Concerning Methylmercury and Bis (2-Chloro-1-Methylethyl) Ether</p> <p>IV. Statutory and Executive Order Reviews</p> <p>A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review</p> <p>B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs</p> <p>C. Paperwork Reduction Act (PRA)</p> <p>D. Regulatory Flexibility Act (RFA)</p> <p>E. Unfunded Mandates Reform Act (UMRA)</p> <p>F. Executive Order 13132: Federalism</p> <p>G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments</p> <p>H. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks</p> <p>I. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use</p> <p>J. National Technology Transfer and Advancement Act</p> <p>K. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations</p> <p>L. Congressional Review Act (CRA)</p> <p>I. General Information</p> <p><i>Does this action apply to me?</i></p> <p>This final action withdraws certain federal human health criteria (HHC) in the State of Washington that are no longer needed due to the EPA's approval of the corresponding State HHC on May 10, 2019. Entities discharging pollutants in Washington waters, citizens, as well as the State of Washington may be interested in this rulemaking, because after the effective date of this rulemaking Washington's EPA-approved HHC, rather than the federal HHC, will be the applicable water quality standards in Washington waters for CWA purposes. This action applies only to waterbodies in the State of Washington and does not apply to waters that are within Indian Country as defined in 18 U.S.C. 1151. If you have questions regarding the applicability of this action to a particular entity, consult the person identified in the preceding FOR FURTHER INFORMATION CONTACT section.</p> <p>II. Background</p> <p><i>What are the applicable federal statutory and regulatory requirements?</i></p> |

EPA, Withdrawal of Certain Federal Water Quality Criteria Applicable to Washington, 85 Fed. Reg. 28,494 (May 13, 2020)

- **PCBs:** Revived WA special cancer risk level of $2.3(10^{-5}) \rightarrow$ effectively **no change from NTR** FCR of 6.5 grams/day if assume $1(10^{-6})$ risk level – again, functional ceiling on safe fish intake
- **Dioxins:** Revived WA reclassification as non-carcinogen \rightarrow **5x less protective than NTR**
- Several **carcinogenic PAHs:** \rightarrow **less protective than NTR**
- For $\frac{3}{4}$ of contaminants, revived HHC less protective than Consolidated Rule
- **Hg:** Because WA had not submitted HHC for Hg, Consolidated Rule stands (more protective)

E. Reframing Exposure Assessment

Water quality standards are generally set to protect fish intake only up to contemporary consumption levels. Exposure assessment gathers the relevant data by conducting fish consumption surveys and otherwise documenting people's current behaviors and practices.

But people's contemporary fish intake levels are **constrained** – e.g., by contamination and depletion of the fish resource.

WQS that reflect only these constrained practices will never result in waters clean enough to support restored fisheries and more robust fish intake.

Instead, WQS should be set by reference to healthful or heritage consumption rates and practices. WQS would then bring about, rather than undermine, the environmental conditions necessary to support tribal practices and rights.

E. Reframing Exposure Assessment

Exposure Assessment That Asks a Better Question

- Avoids negative feedback loop when WQS protect only constrained practices, i.e., the potential for declining fisheries and decreased fish consumption
- Reflects forward-looking purpose of health-based environmental standards; reflects tribes' goals for restoration of fish resource
- Obviates constant need to update contemporary fish consumption data and removes this lever for delay → only one-time need to document heritage data
- Recognizes that current method is not required by law or science, but is artifact of early EPA exposure assessment