Revising Washington's Surface Water Quality Standards: Discussions Around New Human Health Criteria

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Why is Washington updating the WQS?

- Since 1992, Washington has had human health criteria applied through a federal rule issued by EPA.* The federal rule was not based on Washington state or PNW regional data.

- For several years there has been discussion about the current water quality standards not providing enough health protection for people who eat fish and shellfish in Washington.

- The Clean Water Act requires that states adopt updated criteria when new information is available, including for toxics.

*1992 Federal rule : *The National Toxics Rule (NTR) (40CFR131.36).*

Topics for today's talk:

- Summary - Where we are with human health criteria (HHC) in Washington and how we got there
- Risk Management Decisions and public discussions around law, regulation, policy, and guidance
- "Scope of the CWA" issues considered in this rule-making

  (Example: The Relative Source Contribution)
- The Fish Consumption Rate used in Washington's proposal – where does it come from?

Washington CWA HHC history (and shared events….)

1992 – EPA's National Toxics Rule (NTR). Washington's current HHC are in this federal rule.

NTR issued new HHC for 14 states/territories based on:

- 6.5 g/day FCR
- Cancer risk levels of
  - one-in-one hundred thousand or
  - one-in-one-million

2000 – New EPA HHC Guidance

The risk level is the additional risk after a lifetime of daily exposures to contaminants in fish, shellfish and untreated drinking water

Washington CWA HHC history (and shared events….)

2002 and 2003 – EPA updates national recommended criteria (and develops criteria for some additional chemicals) to include new FCRs of 17.5 g/day and other new information.

1990's – 2000's - New fish consumption surveys in Washington for Washington's highest consumers of fish and shellfish– including tribes, recreational fishers, Asian-Pacific Islanders.

2011 – 2015 – Washington in rule-making to adopt HHC and **revised/new implementation tools** into **state** water quality standards (get out of the federal NTR).

2015 – EPA updated its national recommended criteria, with 22 g/day FCR, new information, and consistency with its 2000 guidance document.

Washington's rule-making

Starting in 2011, Ecology took a comprehensive look at how the standards in the federal regulation were developed and implemented with an aim of developing new standards and implementation tools that would meet our current needs.

Goals of this rule-making process include:

- Develop protective water quality standards so our fish, shellfish, and drinking waters (surface) remain clean and healthy to consume.
- Address realistic timeframes to allow dischargers to reduce pollutants and to still be in compliance while they are doing the work.
- Acknowledge that there are technology limitations and give recognition that non-permitted sources are a significant part of the problem with being able to meet the standards.

The process:

- Ecology conducted an extensive public process from 2011 to 2015 with discussion about:
  - The policy and science decisions.
  - The use of new science and local fish consumption information.
- We took a comprehensive look at the math used to calculate the new standards in order to protect Washingtonians.
- We used new science and regional or local inputs where possible (fish consumption and body weight).

Washington draft rules:

First draft rule:

- **Feb 2015** Draft Rule - linked to Governor's toxics control bill
- **July 2015** Bill not approved, so a **rule not finalized**

➢ Further consideration by leaders and management

September 2015 - EPA publishes a proposed revision to the National Toxics Rule for Washington

October 2015 announcement by Governor that Ecology will move forward with a **second draft rule**. Changes in some risk management decisions because this draft rule will not be linked to a toxics bill.

- Stay with state's current risk level: One-in-one-million (10^{-6})

Ecology is currently working on that second draft. Expect it early in 2016.

Two (of many) critical discussions during Washington's rule-making

What do the laws, regulations, policies, and guidance on HHC say?

- What are the legal requirements and responsibilities?
- Where is there flexibility for state-specific decisions ?

What is the "Scope of the CWA" for purposes of developing and using criteria?

- Geographic Scope of the CWA: Where do Washington's CWA Surface Water Quality Standards apply?
- Source Control Scope: What sources can Washington regulate under the CWA and related state law and regulation?

Laws, regulations, policies, and guidance – The discussion in Washington

There are laws, regulations, policies, and guidance on the water quality standards

- We examined the language in the CWA and state law, the federal regulations, and EPA's policies and guidance

Where are the legal requirements and responsibilities, and where is there flexibility for state-specific risk management decisions ?

- The CWA and the regulations lay down the requirements and responsibilities.
- Policy and guidance are areas where Washington determined it has more discretion to make state-specific risk management decisions.

Two examples of that will be discussed:

- How sources of exposure from "outside the CWA" were addressed in the proposed criteria equations
- How salmon were addressed in the proposed Fish Consumption Rate

“Scope of the CWA” discussions in Washington

There was concern and interest in what the state was being told to do with HHC and the authority the CWA gives the state.

Interest in having CWA criteria and the CWA’s associated responsibilities match the regulatory authority given by the CWA – an “apples to apples” approach.

What is the “Scope of the CWA” for purposes of developing and using criteria?

Geographic Scope of the CWA: **Where** do Washington’s CWA Surface Water Quality Standards apply?

Source Control Scope: **What sources** can Washington regulate under the CWA and related state law and regulation?

"Scope of the CWA" discussions in Washington

Geographic Scope of the CWA: Where do Washington's CWA Surface Water Quality Standards apply?

The CWA designated uses and water quality criteria are applied to waters within Washington's jurisdictional authority: "waters of the state."

Washington's CWA standards do **not** apply to marine waters outside the 3-mile limit or to waters of other states

Source Control Scope: What pollution sources can Washington regulate under the CWA and related state law and regulation?

CWA-authorized source controls occur within the geographic boundary described above. These include a variety of permit types.

In general, Washington does not permit facilities on federal or tribal lands.

Washington does not regulate facilities outside the state.

Air emissions are not regulated by the CWA.

There are many sources of exposure to toxics that cannot be regulated with CWA authority

"Scope of the CWA" discussions led to Washington's risk management decision on the Relative Source Contribution

There are many sources of exposure to toxics that cannot be regulated with CWA authority. Examples are:

- Mercury in tuna fish – the FDA sets the limits
- PCBs in inks and dyes – TSCA sets the limits

How should the CWA HHC account for those other sources?

Washington discussed this in depth related to the **Relative Source Contribution (RSC)**.

The RSC is an important input to the criteria equations for **non-carcinogens only.**

What is a Relative Source Contribution (RSC)?

A Relative Source Contribution is the input to the criteria equations that accounts for exposure from “other” sources of a pollutant.

For calculating HHC, the RSC represents the portion of an individual’s daily exposure to a contaminant attributed to the surface water pathway (drinking untreated surface water and eating locally (within-state) caught fish and/or shellfish).

EPA accounts for other sources of exposure when calculating the HHC by incorporating the RSC into the calculation. This is part of the EPA 2000 guidance.

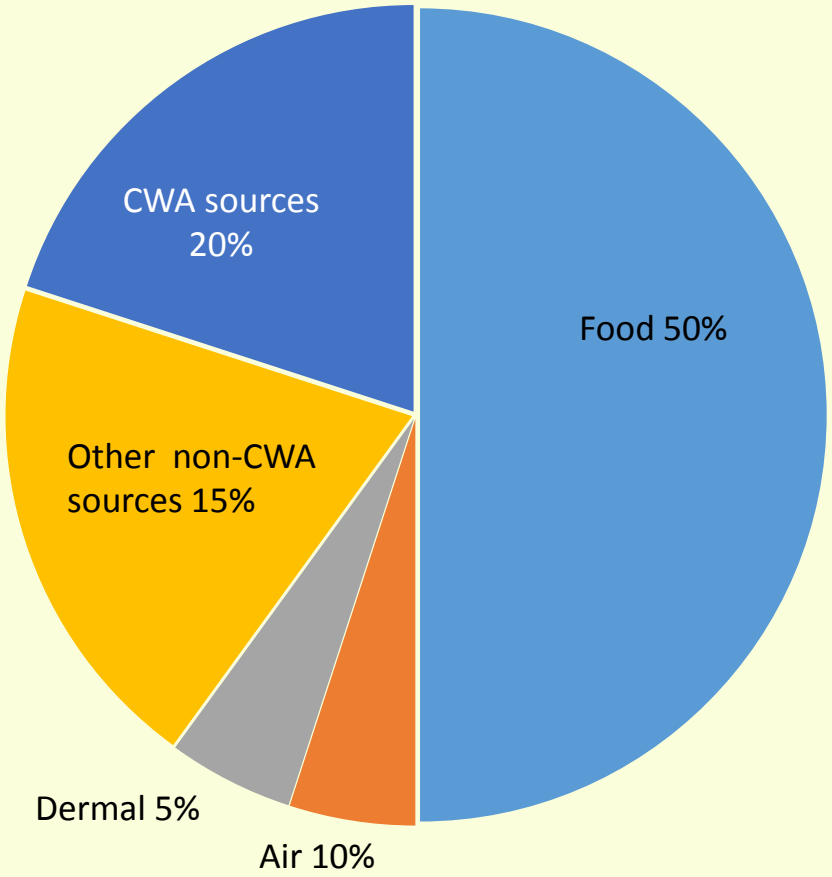
RSCs are used in other regulatory programs – not unique to CWA.

How does it work for HHC? In the simplest language, the calculated criterion is apportioned the amount of allowable exposure that is not used up by other sources.

In other words, other non-CWA sources get the allowable exposures and the HHC gets what is left over (as other exposures get bigger, the HHC get smaller.)

What is a Relative Source Contribution (RSC)?

Simplistically, this circle represents hypothetical sources of exposure to chemical x, totaling 100% of the allowable "safe" exposure.



Air, dermal exposures, food and other non-CWA sources account for 80% of the allowable exposure in this example. Therefore, for this example, the RSC used for the CWA criterion calculation would equal the remaining 20% of allowable exposure.

The RSC would be 0.2 using this example.

This would reduce the calculated criterion by 80% as compared to a RSC of 1.0.

An RSC = 1.0 means the whole circle (all the allowable exposure) is given to CWA sources of pollution in the HHC calculation.

How did Washington address the use of a RSC?

EPA 2000 Guidance recommends using a RSC between 0.2 and 0.8.

The Washington Rule-making Policy/Risk Management step:

> WA needed to make a policy decision on whether to use EPA's guidance on RSCs, and if not, clearly define how RSCs will be addressed in HHC calculation.

Washington state-specific decision on RSC in the draft rule:

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

2015. *Washington State Water Quality Standards: Human health criteria and implementation tools. Overview of key decisions in rule amendment***.** Water Quality Program, Washington State Department of Ecology, Olympia, Washington. Publication no. 14-10-058 (https://fortress.wa.gov/ecy/publications/documents/1410058.pdf)

The Fish Consumption Rate in the draft rule - 175 g/day - where did it come from?

175 g/day is *representative of average* FCRs for **"all fish and shellfish"** (**including all salmon, restaurant, locally caught, imported, and from other sources**) for highly exposed (high consuming) populations that consume both fish and shellfish from Puget Sound waters.

PS tribes	Tulalip	Squaxin island	Suquamish	Three tribal studies combined
Average	82 g/day	84 g/day	214 g/day	127 g/day
The value of 175 g/day was chosen as *representative of the average value/values* of these surveys.				

Used by the Oregon Department of Environmental Quality to calculate HHC in 2011 rulemaking.

Considered an "endorsed" value. Groups endorsing the use of this numeric value, at different times in the process, include EPA and several tribes. This value is also in EPA's proposed federal rule for Washington.

175 g/day is not a calculated value – it was chosen as part of the risk management process for this rule and is based on the best available science for purposes of this rule-making.

Why did Washington keep 100% of salmon in the FCR – even though inconsistent with EPA 2000 Guidance?

Fish tissue data from Puget Sound and marine waters indicated that resident chinook and migrants that stay largely within the Sound and the Straits entering the Sound had higher levels of contaminants in tissue than those putting on most growth in ocean waters.

- Contaminants in tissues were associated with developed areas

Using a very protective set of assumptions we maximized the amount of local Puget Sound salmon retained in the tribal FCRs.

At the average, for both individual tribes and for combined tribes, **the difference between using 100% of salmon in the FCR or using only a portion was found to have a very small effect on the calculated criteria**.

- As a result, Washington decided to simply include 100% salmon in the criteria calculations.

Why did Washington keep 100% of salmon in the FCR –
even though inconsistent with EPA 2000 Guidance?

Retaining 100% salmon in the calculation was a **state-specific risk management decision**.

The criterion equations are made of many inputs that include science, science policy, and risk management.

This is one specific aspect of the draft criteria where a risk management decision was made that adds a large amount of protection to the calculated values.

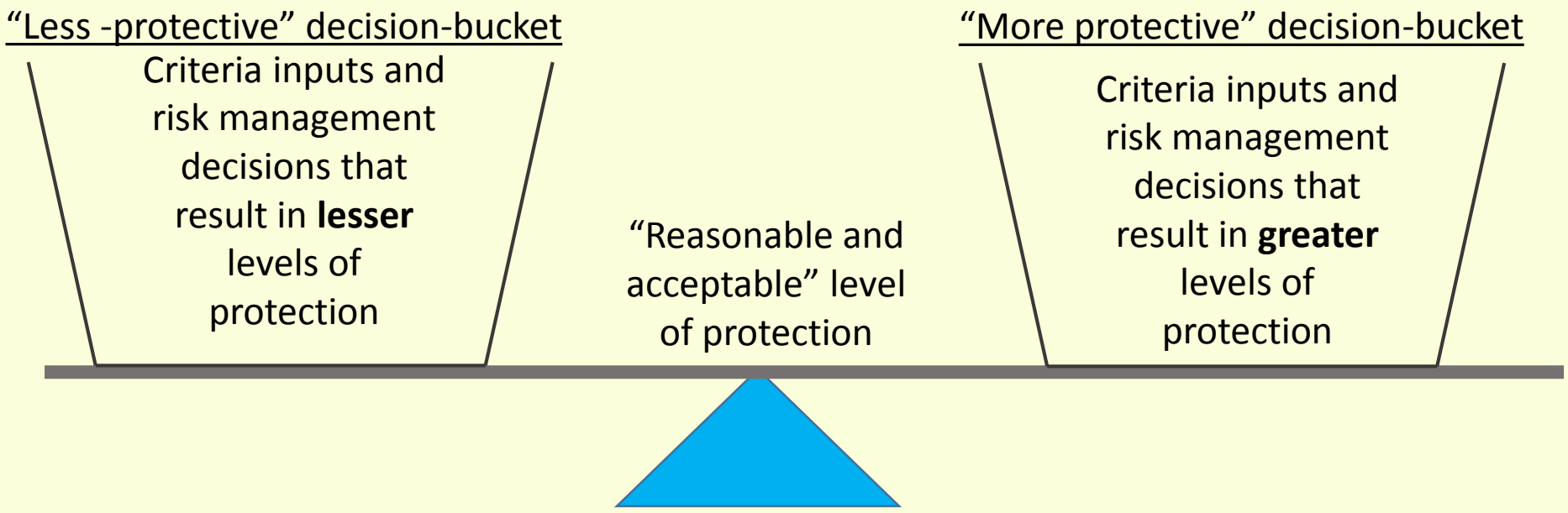
- Upping the rate to include **"all fish and shellfish"** (**including all salmon, restaurant, locally caught, imported, and from other sources**) increases the protectiveness even further (and note: many of those sources are outside WA CWA jurisdiction).

Why did Washington keep 100% of salmon in the FCR – even though inconsistent with EPA 2000 Guidance?

This Washington-specific approach is not the only valid approach to the analysis of salmon in the FCR.

The criteria equations have many inputs – a **balance** of more protective and less protective inputs that are used to develop criteria protective of people who consume fish and shellfish.

Other approaches not based on maximizing salmon retention exist, and could result in more, less, or equally protective criteria **depending on the rest of the inputs to the criteria equations**.



States make state-specific decisions to fit their own unique needs and circumstances

Next step: Prepare and publish the second Draft Rule package

- Proposed rule language
- Draft Environmental Impact Statement prepared under the Washington's Environmental Policy Act
- Preliminary Cost-Benefit and Least Burdensome Analysis
- Draft Implementation Plan
- Draft Citation List
- Supporting Documents:
  - Overview of the key decisions in rule amendments for HHC and implementation tools
  - Others – spanning 2011 to present

Ecology HHC Rule-making website:
http://www.ecy.wa.gov/programs/wq/ruledev/wac173201A/1203ov.html

Questions/Discussion