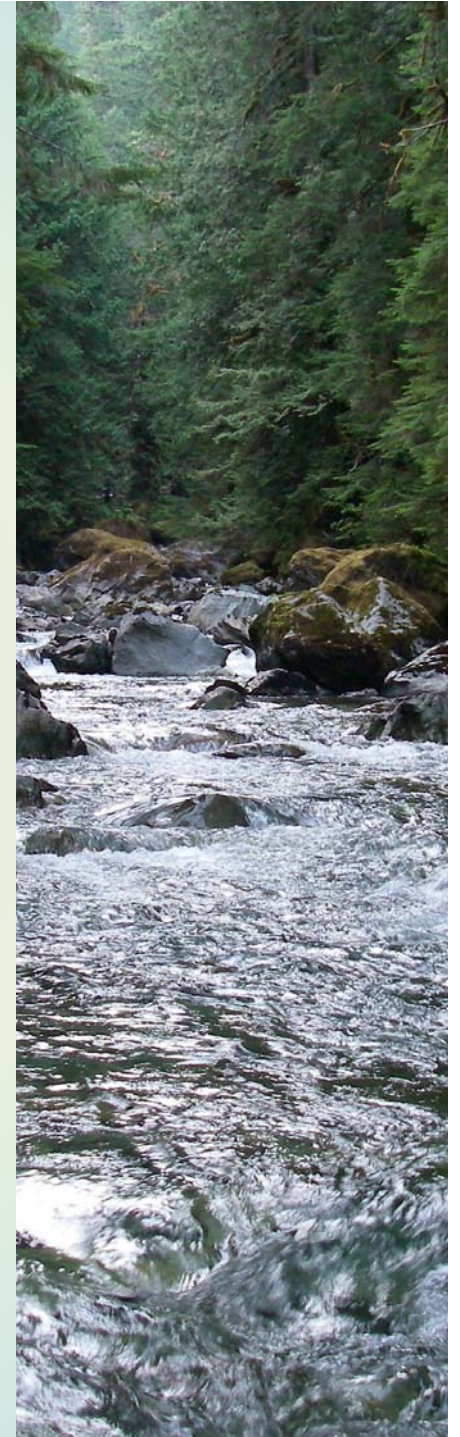


# Current Rule Updates for the Water Quality Standards

## Human Health Criteria and Tools for the Implementation of Criteria

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# Outline of Topics Covered

- Background on Water Quality Standards
- Background on Human Health Criteria
- Key policy issues with the criteria development to protect human health
- Implementation issues and proposed rule
- Schedule/process

# Regulatory Landscape for Water Quality Standards

- Under the federal Clean Water Act all states are required to develop water quality standards.
- All state-adopted water quality standards are required to be submitted to the Environmental Protection Agency for review and approval (or disapproval).
- The Environmental Protection Agency is required to promulgate water quality standards for states that do not adopt standards.
- Washington has water quality standards adopted at WAC 173-201A.

# History of Washington's Toxics Criteria

- Under the Federal Clean Water Act, states are required to update standards to reflect updated science/data.
- In 1992, EPA promulgated the National Toxics rule to protect for human health and aquatic life. Fourteen states were placed under the National Toxics Rule because they had not adopted toxics criteria in their own standards. Washington was placed under the National Toxics Rule for human health criteria.
- Washington criteria from the National Toxics Rule uses a fish consumption rate of 6.5 grams per day, drinking water intake of 2 liters per day, an average body weight of 154 lbs, and a life span of 70 years.

# What is Involved in Developing New Human Health Criteria?

- Equations for both marine and fresh water that deal with both *carcinogens and non-carcinogens*.
  - NOTE: A little over half of the chemicals are carcinogens
- Inputs to the equations represent specific decisions for each factor.
- Since this is the first time Washington has developed human health criteria, these decisions all need to be considered in light of federal requirements and Washington needs.

# Example Equation Used to Develop Human Health Criteria

The human health criteria are calculated using a complex formula with complex inputs.

The formula below is for the “organisms–only cancer criteria”

**Risk Level:** risk of additional cancer occurrence.

- Current risk level = risk of one additional occurrence of cancer in one million people.
- The risk level will be reviewed during the rule.

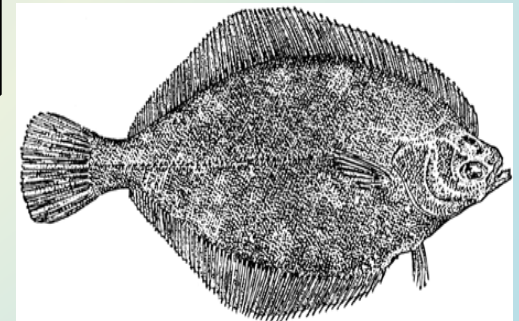
**Body weight:** adult = 70 kg = 154 lbs

**Bioconcentration Factor:** describes the *amount of pollutant in the water* compared to the *amount in the fish tissue*.

$$\text{HHC for a Carcinogen} = \frac{\text{RL} \times \text{BW}}{\text{CSF} \times \text{FCR} \times \text{BCF}}$$

**Cancer Slope Factor:** a measure of the how strong a carcinogen a chemical is. EPA sets this number.

**Fish Consumption Rate:** the consumption rate that the risk level is tied to.



# What are the important inputs in the Criteria Equations?

All of the inputs to the equations are important. Below are the inputs that most influence whether the final criteria are more or less protective:

- The risk level (used only for carcinogen equation)
- The fish consumption rate
- Relative source contribution (non-carcinogen equation only)

# Risk Level

$10^{-6}$  means there is **a risk of one additional occurrence of cancer for a given chemical, in one million people, at the given exposure assumptions** (compared to an unexposed population).

For National Toxics Rule human health criteria applied in Washington, the exposure assumptions are:

**70 years** of daily exposure to **6.5 grams per day** of fish and shellfish, and **2 liters per day** of untreated surface waters, for a **154 lb.** person.

Numeric	What it means, under specified exposure assumptions
$10^{-6}$	...risk of one additional occurrence of cancer, in one million people
$10^{-5}$	...risk of one additional occurrence of cancer, in one hundred thousand people
$10^{-4}$	...risk of one additional occurrence of cancer, in ten thousand people

↑  
Increasing protection

# Fish Consumption Studies

- EPA Guidance suggests that states use regional or local consumption studies and consumption rates to adequately protect the most highly exposed population, when they are available.
- In 2013 Ecology's Toxics Clean-up Program published the *Fish Consumption Rates FINAL Technical Support Document, A Review of Data and Information about Fish Consumption in Washington*, Version 2.0
- **The information in this report, as well as additional information submitted, will inform the discussion and the final risk management decisions on fish consumption rates.**

# Sample of Issues for Developing Human Health Criteria

- What is the fish consumption rate to use for Washington and what population do you focus on protecting?
- How are salmon factored into the fish consumption rate?
- What risk level should be applied to carcinogens? This will also drive how protective the final criteria will be.
- What is approvable by the federal government (Environmental Protection Agency)?

# Tools to Help with Implementation

- Ecology already has a number of tools that we use when issuing permits (e.g. mixing zones).
- We are looking at expanding tools to address some of the difficult issues associated with meeting water quality criteria:
  - Language around intake credits
  - Additional language around compliance schedules (2010 legislative direction to increase timeline in specific situations)
  - Variances (discussed on next slide)

# Variations

- Additional language around variations
- Would expand timelines for how long a variance would be in effect
- Would specify source control requirements
- Would look at a variety of variance situations
  - Facility Specific
  - NPDES Sector Specific (multi-discharger)
  - Waterbody specific (statewide)

# Arsenic-Mercury-PCBs

- Chemicals that are the largest concern for dischargers
- Current human health criteria are already a challenge
- Looking at specific solutions
  - Statewide variance for legacy pollutants?
  - Different human health criteria inputs (Oregon arsenic example)?
  - A new Category 5M on the 303(d) List for mercury?

# Public Process to Develop Rules

- Ecology held a series of Water Quality Policy Forums to educate stakeholders on the process for developing Human Health Criteria.
  - Ecology held the 7<sup>th</sup> Policy Forum on September 12, 2013
- A Delegates' Table was also developed that represents key stakeholders in this process. They are providing feedback to Ecology on key policy issues as the agency moves forward.
  - The 4<sup>th</sup> Delegates' Table meeting was held on September 16, 2013
- The draft rule language is scheduled to be out in early 2014

# State Administrative Procedure Act Supporting Material to Accompany Draft Rule Language

- Code Reviser (CR) 102 Form
- Cost Benefit Analysis
- Small Business Economic Impact Statement
- State Environmental Policy Act (SEPA) Checklist
- Focus sheets, hearing announcements and other related documents

# Important Process Steps to be Aware of after Washington Adopts New Rules

- These rules will need Environmental Protection Agency federal approval.
- If Environmental Protection Agency disapproves the rules then Washington has 90 days to resubmit or Environmental Protection Agency will start federal promulgation.
- All variances will need to go through a future separate rule process. Environmental Protection Agency approval of future variances is uncertain because it is a separate regulatory action.

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## Additional Resources

Surface Water Quality Standards web page:  
<http://www.ecy.wa.gov/programs/wq/swqs/index.html>

Surface Water Quality Standards Rule Revisions:  
<http://www.ecy.wa.gov/programs/wq/swqs/Currswqsruleactiv.html>

To receive Water Quality Information, join our list serv at:  
<http://listserv.wa.gov/cgi-bin/wa?A0=ECOLOGY-WATER-QUALITY-INFO>