Idaho Board Of Environmental Quality

Idaho Human Health Criteria for Toxic Pollutants

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December 10, 2015

Overview

- **Human Health Criteria Rule History**
- **Rulemaking Schedule**
- **Fish Consumption Survey**
- **Policy Development**
- **Rule Review**

History

- 2004 – Oregon DEQ submits their Rule to EPA (17.5 g/day)
- 2005 – April 5th Idaho DEQ Announces Rulemaking
- 2005 – IDEQ Holds Negotiated Rulemaking Meetings and publishes proposed rule.
  - Rule shifts from 6.5 to 17.5 g/day the EPA Nationally recommended fish consumption rate
  - EPA applauds IDEQ rulemaking
- 2005 – November IDEQ Board of Environmental Quality Adopts the Rule

History

- 2006 – Idaho Legislature Approves the Rule
- 2006 – July 7 IDEQ Submits Rule to EPA

Time Elapses

- 2010 – EPA Disapproves Oregon Rule
  - (17.5 g/day)
- 2011 EPA Approves ODEQ Revised HH Criteria
  - Based on a fish consumption rate of 175 g/day
- 2012 May 10 – EPA Disapproves Idaho DEQ Human Health Toxics Criteria

  -- Based on a fish consumption rate of 17.5 g/day

Consequences of EPA's Disapproval

1. EPA must Promulgate a Rule for Idaho, If DEQ fails to take actions EPA identified to remedy the disapproval
2. EPA identified what DEQ must do:

   "To address this disapproval action, Idaho must evaluate local and regional fish consumption information to determine whether its statewide criteria are protective of designated uses."

Human Health Criteria for Toxic Pollutants

Docket No 58-0102-1201

- DEQ Started rulemaking August 2012
- Evaluated Existing Data
  - Found to be limited in scope for Idaho residents, old and of questionable quality

HHC Rulemaking Schedule

- ✓ FCR Survey Development - 2012 - 2013
- ✓ FCR Survey Implementation - 2014 - 2015
- ✓ Policy Discussions – 2013 - 2015
- ✓ Data Analysis – August 2015
- ✓ Proposed Rule – October 2015
- Board Review – December 2015
- Legislative Review – January 2016

HHC Rulemaking Actions

Meetings

- Fish Consumption Survey Design (2012-13)
  - 8 meetings
  - BSU Public Policy Center
  - Public Comment

HHC Rulemaking Actions

Fish Consumption Surveys (2014-2015)

- General Population
- Idaho Resident Anglers

EPA Efforts

- Tribal Member Survey – EPA Sponsored
  - FCRs, Nez Perce and Shoshone-Bannock
  - Heritage Rates, Kootenai, Coeur d'Alene, Shoshone-Paiute, Nez Perce and Shoshone-Bannock

FISH CONSUMPTION RATE

Dietary Recall – NCI Results

Estimated Usual Fish Consumption Rates, g/day

All Fish

Survey/Population	50%	Mean	75%	90%	95%	99%
Idaho Total	14.2	22.0	29.7	51.1	67.7	118
Idaho Angler	15.9	26.5	36.9	64.6	86.4	146
Nez Perce	49.5	75.0	---	173	232	---
Shoshone Bannock	14.9	34.9	---	94.5	141	---
EPA 2014***	17.6	---	32.8	52.8	68.1	105

Tribal Fish Groups

Table 1. Food Frequency Questionnaire Species Groups

Species Group	Description	Species and Groups Included
Group 2	Near coastal, estuarine, freshwater and anadromous	**All species in Groups 3, 4 and 5 as well as lobster, crab, shrimp, marine clams or mussels, octopus* and scallops**
Group 3	Salmon or steelhead	**Chinook, coho, sockeye, kokanee, steelhead, other salmon and any unspecified salmon species**
Group 4	Resident trout	**Rainbow, cutthroat, cutbow, bull, brook, lake, brown, other trout and any unspecified trout species.**
Group 5	Other freshwater finfish or shellfish	**Lamprey, sturgeon, whitefish, sucker, bass, bluegill, carp, catfish, crappie, sunfish, tilapia, walleye, yellow perch, crayfish, freshwater clams or mussels, other freshwater finfish and any unspecified freshwater species**

Dietary Recall – NCI Results

Estimated Usual Fish Consumption Rates, g/day

Idaho All Fish / Tribal Group 2 / non-Marine Fish

Survey/Population	50%	Mean	75%	90%	95%	99%
Idaho Total	14.2	22.0	29.7	51.1	67.7	118
Idaho Angler	15.9	26.5	36.9	64.6	86.4	146
Nez Perce	36.0	**66.5**	81.7	159	234	---
Shoshone Bannock	6.5	18.6	20.0	48.9	80	---
EPA 2014	5.0	---	11.4	22.0	31.8	61.1

Various Consumption Rates

6.5 g/day = ~7 ounce meal once a month

17.5 g/day = 4.3 ounce meal once a week

66.5 g/day = 4.7 ounce meal every other day

175 g/day = ~6 ounce meal every day

HHC Rulemaking Actions

Meetings

- Policy Decisions/Papers (2013-15)
  - 9 Meetings
  - White Papers
  - Public Comment

HHC Policy Decisions/Papers

1) Fish Consumer or Non-consumers (Oct 2013)
2) General Population or Targeted Subpopulation (Dec 2013)
3) Probabilistic Risk Assessment or Deterministic Assessment (April 2014)
4) Market Fish or Local Fish & Relative Source Contribution (May 2014)
5) Anadromous Fish (July 2014)
6) Suppression (October 2014)
7) Risk Management & Protection of Public Health (Dec 2014)
8) Implementation Strategies (March 2015)

HHC Rulemaking Actions

Data Analysis (2015)

- National Cancer Institute (NCI) Method
- Probabilistic Risk Assessment (PRA) Method
- Deterministic Calculations

Summary of Comments

25 Categories of Public Comments

- 7 Tribes
- 2 Environmental Groups
- 11 Trade or Industry Groups
- 76 Citizen Letters + 1 Citizen Email
- AIC and NACWA
- EPA

Summary of Comments

- Response to Comments prepared
- Comments are Summarized
- DEQ Response provided

- Comments Requested Changes to Rule or Advocated for Particular Positions
- AIC Supportive

Non-Carcinogen Formula

$$AWQC = RfD \times RSC \times \left(\frac{BW}{DI + (FI \times BAF)}\right)$$

Carcinogen Formula

$$AWQC = RSD \times \left(\frac{BW}{DI + (FI \times BAF)}\right)$$

$$RSD = \frac{\text{Target Incremental Cancer Risk}}{\text{Cancer Potency Factor}}$$

Idaho Rulemaking

- Fish Intake (FI) – Nez Perce Tribe

  Group 2 Fish

  66.5 g/day mean (~70th percentile)
- Deterministic Criteria Calculation
- Bioaccumulation Factors (BAF)

  Bioconcentration Factors when BAF not available

Idaho Rulemaking

- Relative Source Contribution (RSC)

  Use Default Values –
- Body Weight (BW) –

  Idaho Survey 80Kg Mean
- Drinking Water Intake –

  EPA 2.4L 90^{th} %tile

Idaho Rulemaking

Risk for Carcinogens use 10^{-5}

- EPA guidance allows states to choose from a range of 10^{-5} to 10^{-6} for the incremental increase in cancer risk used in calculating criteria for the general population
- Higher Consumers should be protected at 10-4 or lower

Idaho Rulemaking

Risk for Carcinogens

- Idaho has chosen to use an incremental increase in cancer risk level of 10^{-5}

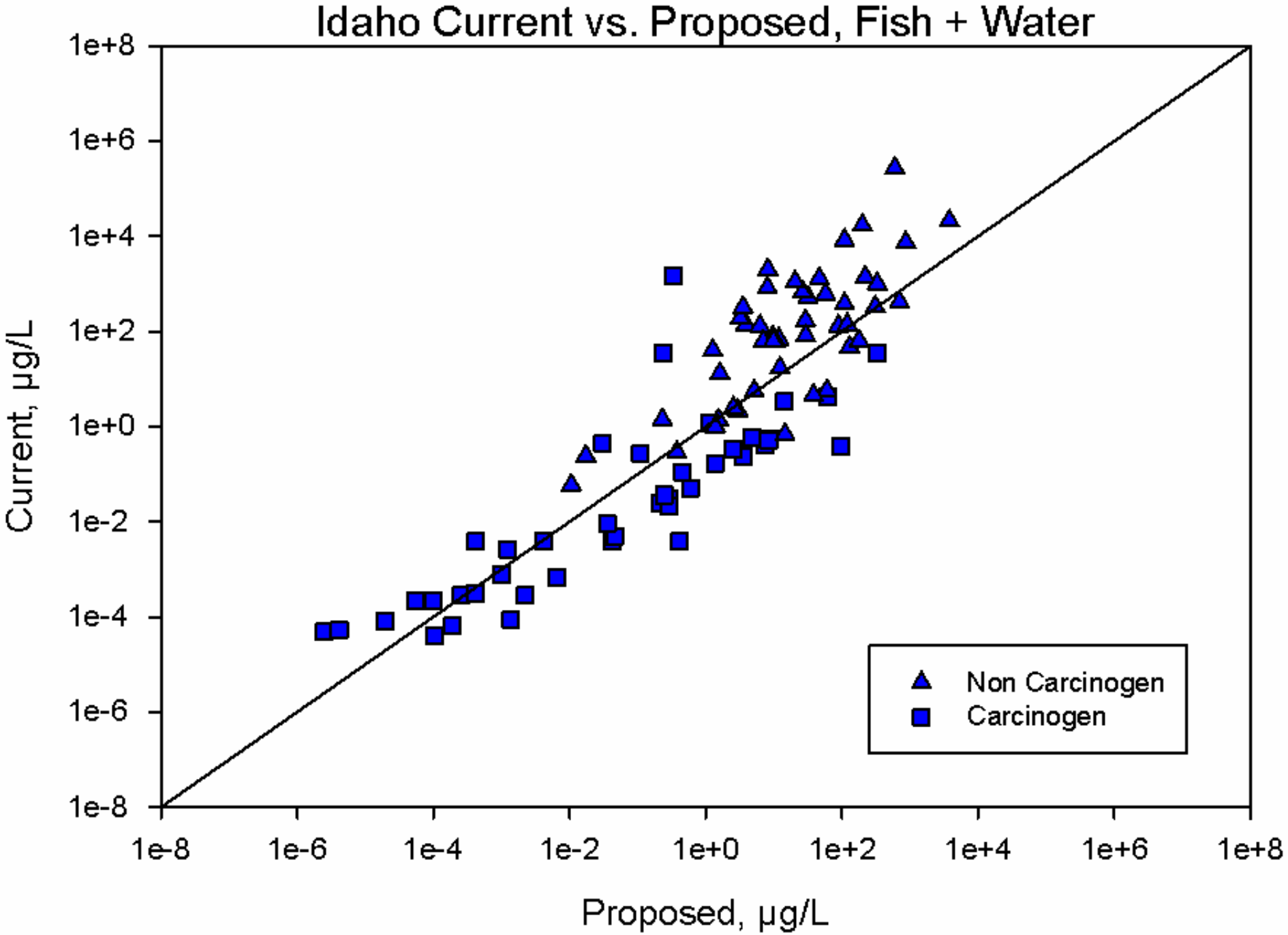
- General Population – generally at a lower risk
- 665 g/day would be at a risk level of 10-4
- Risk can never be made the same for everyone

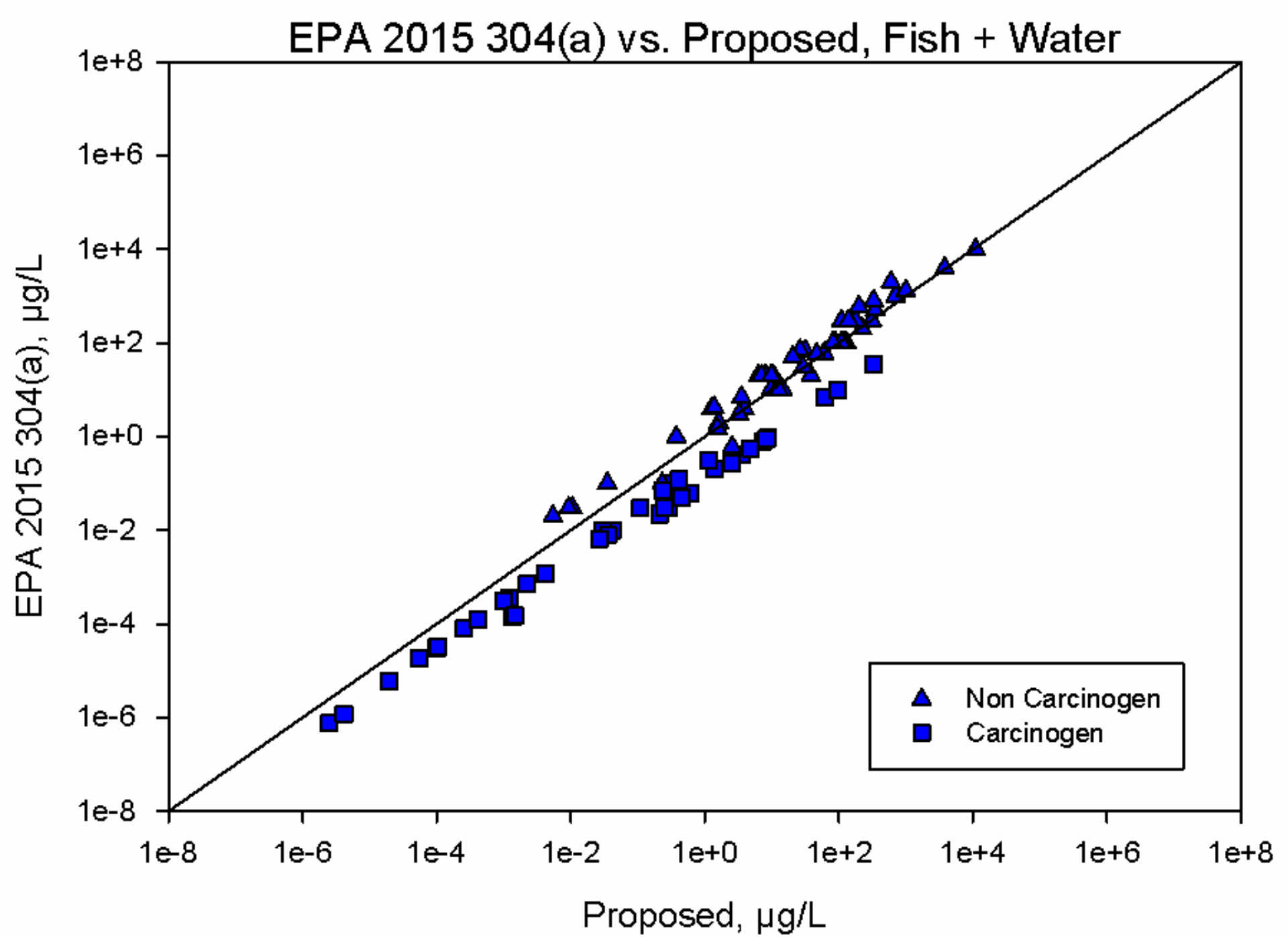
Regional Comparisons

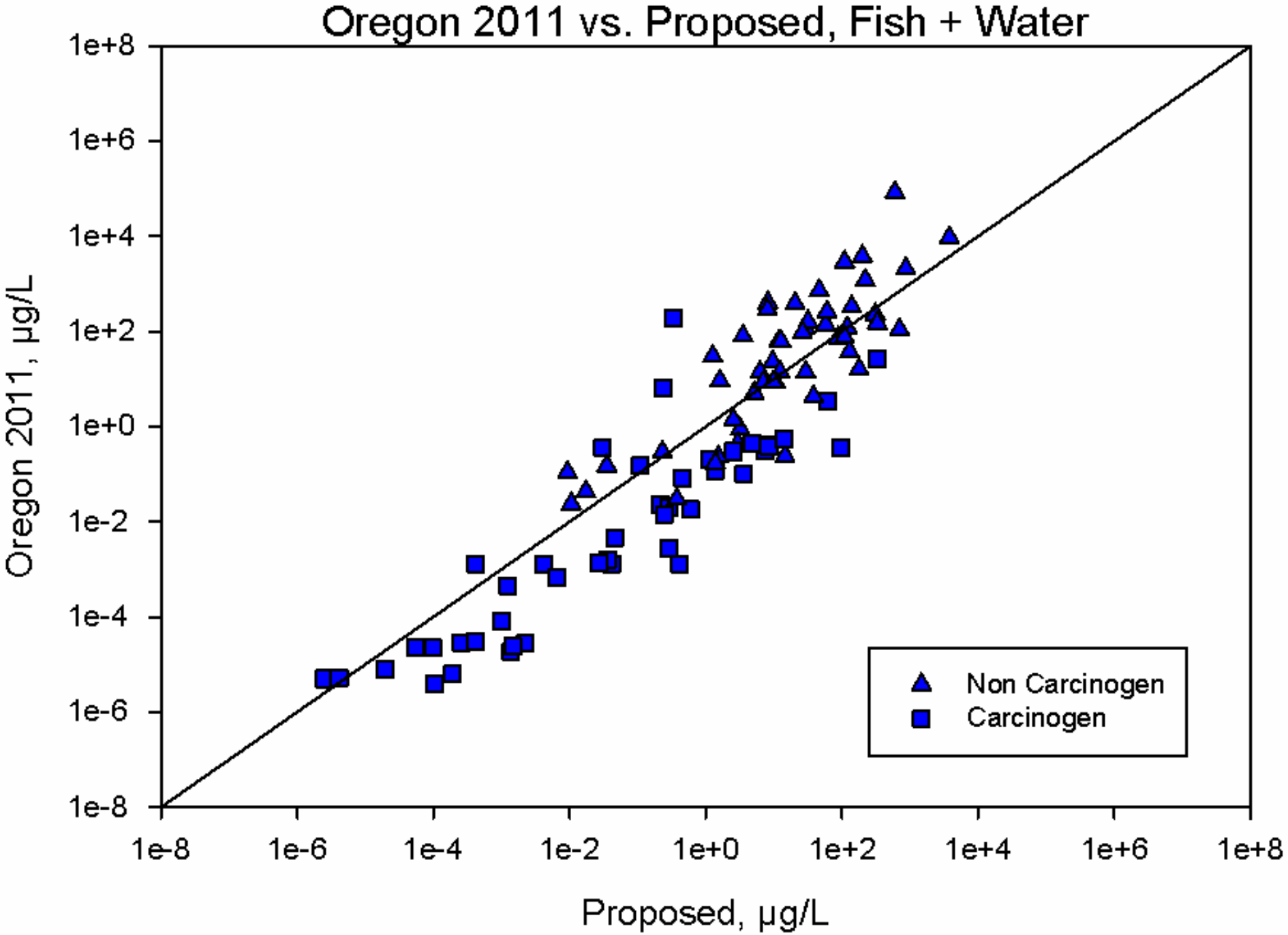
State	Fish Consumption Rate (g/day)
Oregon	175
Idaho	(Disapproved 17.5) 66.5
Washington	6.5 (EPA at 175 and risk of 10-6)
Alaska	6.5
Utah	17.5
Montana	17.5
Nevada	6.5
Wyoming	17.5

What Criteria are at Issue?

- 105 Toxic Substances
- 209 Revised or New Criteria
  - 94 revised substances
  - 11 additional substances
    - based on EPA's 2015 recommendations
    - Change in understanding of toxicity
    - No criteria currently in Idaho WQS
    - Copper


Idaho Current vs. Proposed, Fish + Water
Current, µg/L
Proposed, µg/L
1e+8
1e+6
1e+4
1e+2
1e+0
1e-2
1e-4
1e-6
1e-8
Non Carcinogen
Carcinogen


EPA 2015 304(a) vs. Proposed, Fish + Water
EPA 2015 304(a), µg/L
Proposed, µg/L
1e+8
1e+6
1e+4
1e+2
1e+0
1e-2
1e-4
1e-6
1e-8
Non Carcinogen
Carcinogen


Oregon 2011 vs. Proposed, Fish + Water
Oregon 2011, µg/L
Proposed, µg/L
1e+8
1e+6
1e+4
1e+2
1e+0
1e-2
1e-4
1e-6
1e-8
Non Carcinogen
Carcinogen

Some Notable Criteria Shifts

- 6 compounds have switched from cariogenic effect to non-cariogenic effect driving the criteria:
  - Benzene
  - Methylene Chloride
  - Tetrachloroethylene (Perchloroethylene)
  - Trichloroethylene
  - 2,4,6-Trichlorophenol
  - Hexachloroethane
- Technical Support Document 2015

HUMAN HEALTH CRITERIA RULE REVIEW

Questions