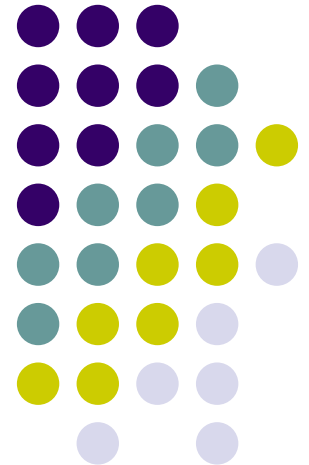
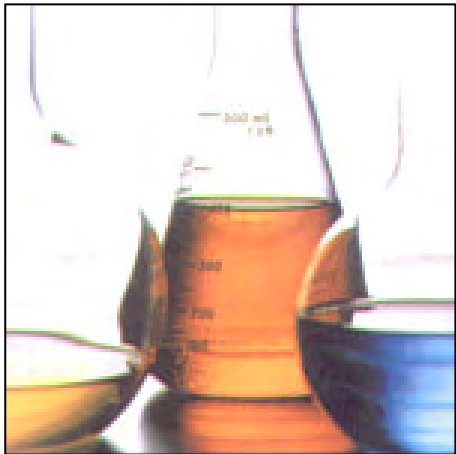


2004 Toxics Criteria Triennial Review

An overview

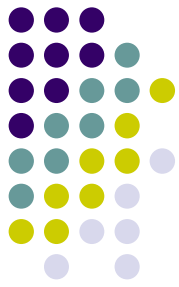


What is a triennial review?



- The Clean Water Act requires that DEQ review its water quality standards regularly in order to use the latest scientific information and consider the state's needs
- DEQ initiated its last triennial review in 1999 and completed the review in 2003

How was the review conducted from 1999-2003?



- DEQ consulted advisory committees:
 - Technical Advisory Committee (TAC) made up of external experts for each topic (e.g. toxics)
 - Policy Advisory Committee (PAC) made up of external stakeholders for the overall process
- Both advisory committees were charged with making a recommendation to DEQ in regard to the adoption of new aquatic and human health water quality criteria

What did the Technical Advisory Committee (TAC) review?



● **Human Health Criteria**

- There were 219 individual criterion in need of review
- The TAC decided that the 2000 EPA Methodology was superior to the old EPA methodology for deriving human health criteria, but that there were data gaps to using the 2000 EPA Methodology.
- To fill data gaps, TAC focused its efforts on:
 - the availability of data on bioaccumulation factors
 - deriving a fish consumption rate appropriate for the protection of Oregon's population.

TAC review of Bioaccumulation Factors

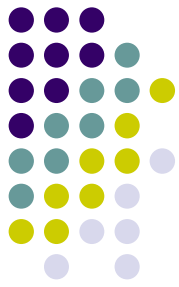


$$\text{Water Quality Criteria} = \frac{(\text{Risk Factor/Cancer potency}) \times \text{Body Weight}}{\text{Drinking water intake} + (\text{Fish consumption rate} \times \text{Bioaccumulation Factor})}$$

• Bioaccumulation Factors (BAFs)

- Bioaccumulation factors (BAF) account for the uptake by a fish of a pollutant from all sources (including the surrounding water, food, and sediment).
- Previous methodology used Bioconcentration Factors (BCF), which accounts for the uptake by a fish of a pollutant from only the surrounding water
- DEQ asked EPA for information on nationally derived BAF, but EPA could not offer any advice at the time
- Due to resource constraints, DEQ could not develop Oregon specific BAF and therefore defaulted to BCF used in the national recommended criteria

TAC review of Fish Consumption Rates



- Fish Consumption Rates
 - Discussion centered on the availability of technically defensible values for Oregon's general population and other populations of concern within Oregon that are known to be high fish consumers.
 - The TAC agreed that there were no quantitative studies on fish consumption by the general Oregon population
 - The 1994 Columbia River Inter-Tribal Fish Commission (CRITFC) Fish Consumption Study did contain good information on fish consumption in a subpopulation with a high fish consumption rate

Defensible Fish Consumption Rates



- The TAC concluded that **17.5, 142.4, 63.5, and 389.0 g/day** were technically defensible fish consumption rates.
 - 17.5 g/day = 90th percentile from National USDA study
 - 142.4 g/day = 99th percentile from National USDA study
 - 63.2 g/day = mean of CRITFC study
 - 389 g/day = 99th percentile of CRITFC study

How do we use multiple rates?



- TAC indicated that the choice of which rate to employ was a policy decision to be made based on which population Oregon wished to protect
- The TAC also offered the option of using multiple rates on different waters in Oregon according to the intensity of fish consumption from specific waters of the State
- The TAC proposed that one of three fish consumption rates be used for deriving criteria that would be specific to waters within Oregon's designated subbasins:
 - 17.5 g/day (0.6 oz/day) low intensity fish consumption
 - 142.4 g/day (5.0 oz/day) medium intensity fish consumption
 - 389.0 g/day (13.7 oz/day) high intensity fish consumption

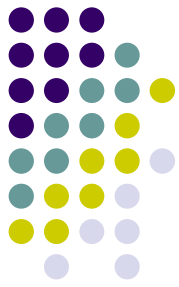


Where would different rates apply?

Basin	Specified Waters	Fish Consumption Rate (g/day)
North Coast – Lower Columbia Basin	Estuaries and Adjacent Marine Waters	389
	Columbia River: Mouth to RM 86	389
	All Other Streams & Tributaries Thereto	17.5
Mid Coast Basin	Estuaries and Adjacent Marine Waters	389
	Fresh Waters	17.5
Umpqua Basin	Umpqua R. Estuary to Head of Tidewater and Adjacent Marine Waters	389
	Umpqua R. Main Stem from Head of Tidewater to Confluence of N. & S. Umpqua Rivers	142.4
	North Umpqua River Main Stem	142.4
	South Umpqua River Main Stem	142.4
	All Other Tributaries to Umpqua, North & South Umpqua Rivers	17.5

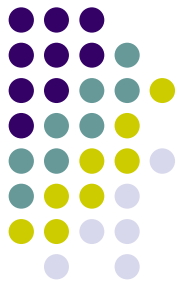
An excerpt from the TAC recommendations

What did the Policy Advisory Committee (PAC) review?



- The PAC faced the following policy decisions concerning human health criteria:
 1. Which population should the criteria target to protect (i.e. fish consumption rates from which populations)?
 2. Which percentage of the population should be protected?
 3. Which level of risk of increased incidence of cancer should the criteria for carcinogens be set?

PAC can't decide on Fish Consumption Rate



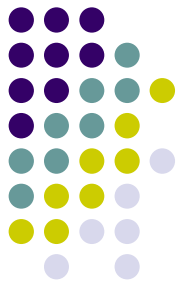
- PAC members questioned the TAC's three consumption rate approach for setting human health criteria
 - possible inequities because there would be different criteria for the same toxic compound on the same river
- Final decision:
 - No consensus from the PAC regarding whether a single or multiple fish consumption rates should be used
 - No consensus on which fish consumption rate should be used regardless of single or multiple rates

PAC debates population percentiles



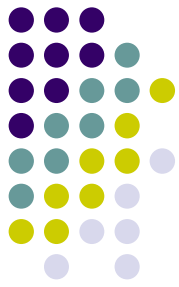
- The PAC discussed the difficulty of deciding on the appropriate population percentile to target in order to derive a protective fish consumption rate.
 - EPA offered justification for the use of several different percentiles
 - PAC members struggled with the necessity of making a qualitative judgment on a quantitative variable.

PAC decision on Cancer Risk



- In considering the three possible cancer risk rates (10^{-5} , 10^{-6} , or 10^{-7}), the PAC discussed the large influence that this factor had on calculating the criteria.
- EPA had recommended any of these levels as being acceptable for setting human health criteria, and the TAC had recommended that DEQ continue to use 10^{-6} .

DEQ recommendation to the Environmental Quality Commission (EQC)



- In May of 2004, DEQ recommended human health criteria based on EPA's National Recommended minimum value of 17.5 grams/day
- The recommended approach was based on:
 - That it will likely be approved by EPA
 - it avoids the equity issues raised by some PAC members over the use of TAC-recommended multiple fish consumption levels
 - it provides greater protection to subsistence fisher subpopulations within the State than currently exists.
- The Environmental Quality Commission asked the Agency to revisit the issue at a later date and that ideally, an Oregon-specific survey of fish consumption will be available for similar calculations in the future