

**Pend Oreille River TMDL Watershed Advisory Group
Technical Meeting Notes
May 12, 2008
Spokane Ramada Room 100
Spokane, WA**

Participants: Pat Buckley and Scott Jungblom, Pend Oreille PUD; Jack Snyder, contractor for Pend Oreille PUD; Michele Wingert, Kalispel Tribe; Karin Baldwin, Paul Pickett, and Susan Braley, Washington Dept of Ecology; Helen Rueda and Ben Cope, EPA; Robert Steed and Kristin Keith, Idaho DEQ; Chris Berger, Portland State University; John Sugden and Ruth Watkins, Tri-State Water Quality Council; Kent Easthouse and Michael Schneider, Corps of Engineers; Lori Blau, Ponderay Newsprint; Christine Pratt, Seattle City Light; Jenna Borovansky, Long View Associates and Tarang Khangaonkar, Battelle Pacific Northwest Laboratories, contractors for Seattle City Light. On the phone: Patty Perry, Kootenai Tribe.

Introductions: Ruth Watkins opened the meeting and had everyone present and on the phone introduce themselves. Ruth described the agenda and emphasized that this session was intended for the agencies and stakeholders to gain clarity on the technical issues facing the release of this TMDL. The priority technical issues include:

- temperature differences in the water column and whether to use bottom and surface cells, a volume weighted average, or a flow weighted average to determine exceedances and allocations
- model error, uncertainty, calibration and sensitivity analysis
- lag time and using a cumulative frequency distribution analysis to determine the level of impairment
- margin of safety and conservative assumptions.

Other technical issues remain, but these are the highest priority items.

Temperature differences in the water column: bottom/surface cells or maximum in the column vs. volume- or flow-weighted average:

Corps issues: Albeni Falls Dam helps cool the river because colder water from Lake Pend Oreille (LPO) is spilled downstream. The Corps disagrees with DEQ's choice of metrics dealing with small regions of surface and bottom cells. There is a difference between the Corp's observed data and the higher modeled temperature data for existing and natural conditions. Ecology should maintain consistency between basins regarding the application of Washington water quality standards. The Corps believes that using the maximum temperature in the water column does not represent the dominant aquatic habitat.

SCL issues: Cold water exits Box Canyon Dam and gets trapped in the bottom of the reservoir. Using a volume weighted average in Boundary Reservoir wouldn't make much difference, but it would be more representative of biologic conditions. SCL asked

Ecology staff why a volume weighted average for the Pend Oreille River TMDL does not apply when it is used elsewhere – what is the scientific basis?

Outcomes: DEQ will not use surface and bottom cells when developing allocations. Ecology's temperature standards are not a mean temperature, rather they are a maximum value. Ecology will continue to use the maximum temperature in the water column for their analyses because the difference is not compelling enough to go back and redo the work. Ecology staff will get back to the group with an answer to SCL's question.

Model Error, Uncertainty, Calibration, and Sensitivity Analysis:

Corps Issues: Model error between existing and natural conditions does not cancel out. Hydrologic error exists in the existing conditions model and thermal error exists in the boundary conditions from late April 2004.

Outcomes: DEQ will not address these issues with the model and data because they are beyond the scope of the project.

Lag Time; Frequency Analysis during critical time period; Sorting out of source impairment:

SCL Issues: Lag time is 2.5 days of from tracer test and thermal inertia lag time is 4-5 days. A frequency analysis will address these lag time issues. Using a "rolling" lag time still allows a small lag time to be seen as impairment, is ineffective in isolating the real impairment, and results in double counting. Using a small window of pooled data does not capture enough information for a frequency analysis. Battelle's analysis was based on the season when temperatures exceeded the 20° C criterion.

Corps Issues: The Corps wants the causes of the calculated impairment sorted out. Many of these calculated impairments result from errors introduced at the upstream boundary. A frequency analysis will help reduce the identification of impairments caused by model error and better characterize the river.

Outcomes: Ecology and the Kalispel Tribe will check if a cumulative frequency distribution analysis is acceptable under Washington and tribal water quality standards and to EPA. Ecology will evaluate what might be an appropriate pooling period based on the temperature needs of aquatic life and consider using a frequency analysis. Ecology told the group they would need additional time for this work. DEQ addresses the Corps issues with load duration curves, which uses frequency analysis and credits the dams for their beneficial effects at other times of the year.

Margin of Safety and Conservative Assumptions:

SCL and Corps Issues: Both stakeholders want a definition of margin of safety and clarification that model uncertainty and margin of safety are different terms.

EPA defines margin of safety as the loading capacity reserved or withheld due to uncertainty about pollutant loading and waterbody response. There are two types of margin of safety: implicit and explicit. Implicit margin of safety relies on conservative assumptions whereas explicit margin of safety is a portion of the loading capacity. For more information see page 3-6 of the following document:
www.epa.gov/owow/tmdl/tmdlguid.pdf.

Outcomes: Ecology is using an implicit margin of safety. Using conservative assumptions during the analysis (such as using the maximum water temperature) will protect beneficial uses of the Pend Oreille River from any unknown or unaccounted information in the analysis or unforeseen natural event. DEQ is looking at using an explicit margin of safety in the Load Duration Evaluation.