

Stream Temperature: Water Quality Standards

March 22, 2012
North Fork Coeur d'Alene WAG

WAG Questions

- What's the deal with the temperature water quality criteria when they're almost always exceeded?
- How can we demonstrate compliance with water quality standards for temperature?

Water Quality Criteria - General

- Set by DEQ through legislative rulemaking
- Based on best available science and information
- Must be approved by EPA
- EPA also has authority under Clean Water Act to establish criteria

Water Quality Criteria - Temperature

- DEQ established criteria for temperature to protect aquatic life
- EPA also established criteria for temperature to protect bull trout in Idaho
- Numeric criteria (see handout) plus natural background provisions

Water Quality Criteria - Temperature

- DEQ recognizes rules are difficult to attain
- DEQ has conducted research on the topic and attempted to change criteria
- DEQ has limited options to adopt other criteria due to EPA's regional recommended criteria
- Difficulty assigning numbers to complex systems, use best available science and tools
- Recommend **reasonable** approach to these issues and focus on **implementation**

Water Quality Criteria - Temperature

- There may be no impairment under certain conditions:
 - Brief, infrequent and small exceedances when biological data show full support
 - Extremely high air temperatures
 - Natural background conditions

Natural Background

- Exceedance of criteria due to natural conditions is not impairment.
- Are temperature exceedances due to natural background conditions for temperature?
 - *Yes, then do not list!*
- If some exceedance is due to human causes, even though there is a natural component, then must list.

Natural Background

Natural for temperature can be shown by:

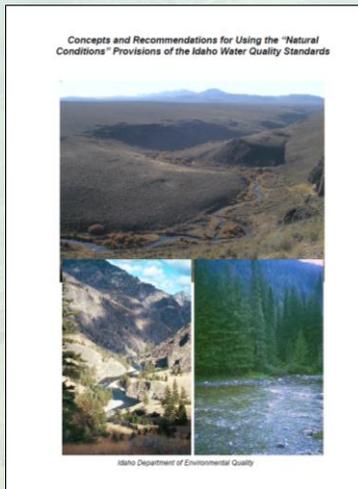
- Watershed is entirely **Wilderness** or **Roadless**.
- Timber harvests or roads occupy <1% of riparian management zones of perennial streams.
- Shade and solar load in the watershed is within 10% of its potential (PNV).
- Observed/expected (O/E) macroinvertebrate taxa ratio is >0.91 (less than 8% taxa loss).

Natural Background - Resources



<http://www.deq.idaho.gov/water-quality/surface-water/standards/natural-background-conditions.aspx>

Natural Background - Resources



- 2003 Report "Concepts and Recommendations for Using the Natural Conditions Provisions"
- Currently being revised.

Natural Background - PNV

Temperature TMDLs use Potential Natural Vegetation (PNV) to set shade targets and solar loads that meet natural background conditions.

See *PNV Temperature TMDL Procedures Manual* by Shumar and de Varona

http://www.deq.idaho.gov/media/528731-pnv_temp_tmdl_manual_revised_1009.pdf



Meeting Temperature Standards

Demonstrate attainment of standards by:

- Meeting numeric criteria
- Demonstrating natural background conditions
 - Wilderness and Roadless, minimally disturbed riparian zones, meet solar load targets, good biological data
 - Multiple lines of evidence helpful, no “cookie cutter” method

The Way Ahead

- Cooperate on TMDL implementation planning and projects to improve stream temperatures
- Follow recommendations of draft TMDL including protection of cold water refuge areas

The Way Ahead

- Provide suggestions for waters likely to attain standards and provide data and documentation to support assessment
 - Graham Creek?
 - Cataract and West Elk Creeks?
 - Deer Creek and tribs to Upper NFCDA?
- Develop TMDL/implementation monitoring plan to demonstrate progress and attainment