

STAFF RESPONSE

Oregon Roundtable on Sustainable Forests Preliminary Evaluation of Indicator of Sustainable Forest Management



Indicator D.a.: *Water Quality in forest streams*

Current desired trend/target: Water quality index values in Oregon forested watersheds are stable or improving.

The following is a response by Oregon Department of Environmental Quality technical and policy staff to the July 27, 2010 Oregon Roundtable on Sustainable Forests preliminary evaluation of Indicator of Sustainable Forest Management D.a.: *Water Quality in Forest Streams* (this evaluation can be accessed at:

http://www.oregon.gov/ODF/indicators/docs/BOFATTCH_20100908_3_3_D_a_Roundtable_Evaluation.pdf

The current data report for this indicator can be accessed at: <http://www.oregon.gov/ODF/indicators/indicatorDa.shtml>. No changes have been made to the online report.

Key Roundtable findings

- Reliable and increased funding is needed for water quality monitoring. Good progress has been made in the past ten years. The achievements through the Oregon Plan for Salmon and Watersheds are examples. Continued statewide water quality index data collection is needed to fulfill the commitments made under the Oregon Plan.
- We should ask policy makers and funders to fund/support continued progress. We have ten-years of data but no guaranteed future funding for this monitoring work. Without continued adequate funding, we should expect the information quality for this indicator to be inadequate in the future. We need to look for other funding sources as well as partnerships with other agencies, municipalities, and volunteer organizations.
- Current monitoring intensity is uneven, with more data available on USDA Forest Service lands that also tend to represent higher elevations.
- Funding limitations have prevented a desired level of probabilistic sampling for this indicator. The indicator uses the best data available, but there are concerns about the adequacy of the number of sample sites and their distribution and the ability to assess trends due to funding losses for future data gathering.
- Pursue either routine targeted monitoring of Federal, State, industrial and family forestlands or use a probability design. Probabilistic sampling is preferred. There should be common data standards and methodologies across agencies and land uses for water quality monitoring.

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Changes Made to the Indicator Report in Response to Key Roundtable Findings

None

Staff Responses to Roundtable Comments

- The majority of comments from the Roundtable concerned the lack of a stable, routine monitoring plan to adequately describe water quality conditions of Oregon's streams. This is an issue that goes well beyond the Roundtable of Sustainable Forestry, requiring significant coordination between all state natural resource and environmental agencies. Until such a consistent monitoring plan is in place, there will be a limited ability to make comparable statements of status and trends of water quality conditions.
 - For example, this first report on water quality conditions of Oregon's forested streams was based on over 400 water samples collected from 1999 – 2008. These data mostly came from monitoring programs that no longer exist. Current funding exists for about 50 sites to be monitored, at the state scale, every 5 years. With this level of data collection, we will likely not be able to even make an estimate of water quality on forested streams at the statewide scale.
 - Additionally, even if we did collect 400 samples over the next 10 years, there is no guarantee of comparability in the datasets. Without a standardized, routine monitoring plan, there is no guarantee that the monitoring efforts are spatially similar. The current assessment is heavily weighted towards Western Oregon streams. Future monitoring efforts may have a different spatial emphasis, making direct comparisons difficult at best.
 - Without a stable, routine monitoring plan, there is no possibility of assessing trends. If we truly wish to understand if water quality is stable or improving, we need to implement a monitoring plan that incorporates one, or both of the following:
 - Monitoring some subset of streams on a regular basis. Of the 400+ sites assessed in this report, only about 10 are part of stable, routine monitoring plan allowing for trends assessments.
 - Monitoring a consistent spatial scale with similar effort across time. For example, in Year 1 we could monitor 100 randomly selected forest sites across Oregon. In subsequent years we could monitor a different set of randomly selected streams across the state. Each year's set of 100 sites is a representation of all of Oregon's forested streams, and after enough time has elapsed trends can be determined. Again, to achieve this requires a stable routine monitoring plan.
- The data used in this report are limited to represent conditions during the low-flow summer period. The seasonal limitations of this data are an artifact of the monitoring programs under which the data was collected. These surveys collected a wide array of information in addition to water quality samples. Sampling for instream and riparian habitat, macroinvertebrates, fish are frequently not possible during high flow periods.
- Several comments were made regarding the limitations of one-time grab sampling, as were used to

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assess water quality conditions of forested streams in this report.

- If the intent is to accurately characterize the conditions of a single site on a stream, then repeated sampling at each site is the most effective approach.
 - However, if the intent is to characterize the conditions across the landscape, as it was with this report, then monitoring should occur at many sites in a spatially balanced fashion. This first assessment did a good job with the number of samples part, but the spatial balance was highly biased towards Western Oregon.
- Several comments were related to the inadequacy of the Oregon Water Quality Index (OWQI) to address potential stressors like toxics, sedimentation, or habitat alteration.
 - Toxics are a more difficult and expensive class of water quality stressors to sample for compared to conventional water quality parameters (like pH, nutrients, etc.). One-time grab samples are often ineffective at capturing toxic compounds, which are most frequently released into the environment in a sporadic nature and frequently below detection limits. Different monitoring programs may be necessary to effectively monitor for toxics, such as deploying passive samplers to collect toxics across a longer period of time. Development of a separate toxics index would be a more effective approach.
 - While not a direct measure of sedimentation stress, the total solids and nutrients sub-indices may be related to excess sedimentation in streams, thus providing an indirect measure of potential sedimentation effects. Additionally, the indicator of biological condition (Indicator D.b.) can provide another indirect measure of sediment stress.

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