The Department of Ecology's Response to:
David Croxton – Environmental Protection Agency (Comment 47)

Transparency of Query Tool: Ecology appreciates EPA's comments on the importance of having the Query Tool for the Water Quality Assessment be as transparent as possible. We acknowledge that improvements can be made, and are continually working to make progress in that area. One of the challenges is that when we created the most recent database, we rolled in the entire previous basis statements from well over 1000 listings, and were not able to look at each one individually. Doing so has resulted in old information that is not as robust as our more current listing information. As we find these, we are correcting them as best we can, and expect that in time these old statements will be replaced with more updated and relevant information.

Bioassessment:
In response to concerns from EPA R10 that Ecology was inadequately considering the results of bioassessment data as a basis for listing water segments in Category 5, Ecology developed policy that addressed how the data would be considered. Based on information available at the time of the development and public review of the policy, Ecology established conditions under which bioassessment information would be used in creating the various categories within the WQA for 2006/2008. This action alone fulfilled EPA's request contained in the 2005 approval letter.

Using bioassessment data, whose effects by its nature are not directly attributable at time of listing to the presence of a pollutant correctable through the TMDL process, is contrary to the stated purpose of listing in Category 5. Ecology has taken the position that in order to place a segment in Category 5 for bioassessment, a pollutant causing the low metric must be identified. Nevertheless, Ecology made this exception to its listing principles to accommodate the wishes of R10. The 2006/2008 draft category 5 listings now contain at least 13 water segments for bioassessment where none were listed previously.

Ecology adhered to the WQ Policy 1-11a throughout the assessment process. Policy does not have the force of regulation in that variations from policy are acceptable if warranted by the facts of a particular situation. In addition, the policy states: "Ecology reserves the right to make assessment decisions on matters not addressed by this policy, or in a manner not in accordance with this policy, as needed to address unusual or unforeseen situations." This is particularly useful in the assessment of bioassessment data. Bioassessment does not have a criterion established by rule in WA WQS.

The policy used the best information available to us at the time of policy development, but subsequent information indicates that the RIVPAC criteria and B-IBI assumptions in the policy may not be correct. Discussions with the Clallam County Streamkeepers group, comparison and review of available information, and conclusions in an EPA document on bioassessments in western states all served to modify the approach for category listings in this assessment. In addition to the principle that we assess only segments for which we received new data, the following guided the bioassessment evaluations.

• Rather than requiring three years of B-IBI data scores indicating a trend in population diversity and abundance, we now accept two years to place a segment in Category 1 or 5. Consistent with other parameters for a Category 5 call, more than one indication of nonattainment is appropriate to trigger the category call because of the investment involved in a TMDL study.
• Consistent with the recommendation in "An Ecological Assessment of Western Streams and Rivers, EMAP" (Sept 2005, EPA) using a "common-sense threshold " RIVPAC type indices should be less than 50% rather than 75% to be placed in category 5, and
• Potential natural impacts from adjacent water bodies and any recent physical modifications to a segment should be considered. More study and consideration of the use of bioassessment as a tool in water quality rating and restoration is planned by Ecology.

Consistent with the above guidelines, listings 47010, 42823, 42843, 47021, and 47025 are in Category 2 for this assessment cycle.

Listing IDs that disappeared between listings: To accommodate EPA's questions regarding listings that appear to have moved off Category 5, Ecology has created a spreadsheet with all determinations made for Category 5 and an explanation of what happened to the listing. The spreadsheet was submitted with the formal Water Quality Assessment submittal to EPA

McAllister Creek
The human impact is within the 0.2 decrease allowed in the standards, based on the data within the TMDL report. The TMDL Report "Nisqually River Basin Fecal Coliform Bacteria and Dissolved Oxygen Total Maximum Daily Load Study" states in the Abstract pg vii, "Low dissolved oxygen levels found in McAllister Creek were determined to be largely due to natural conditions, from a combination of low dissolved oxygen in the groundwater, wetland influence, and physical conditions that impede reaeration of water."

No wasteload or load allocations were assigned in the TMDL for impacts to dissolved oxygen in the segments of McAllister Creek because the anthropogenic loads were so minimal as to be unable to quantify or assign to a source. Dissolved oxygen levels in the creek actually improved despite minimal aeration from point of discharge from the groundwater at the wetlands to the mouth at Nisqually reach. See Figure 25, pg 58. (from TMDL, pg 65) "As per the Washington State Water Quality Standards, dissolved oxygen levels at McAllister RM 5.8 represent natural water quality conditions and shall constitute the dissolved oxygen water quality criteria for McAllister Creek."

Available data in the EIM database supports the claim for naturally low dissolved oxygen levels emanating from McAllister Springs into the wetland headwaters of McAllister Creek (values of 4.0 and 4.9 mg D.O./liter in 2002 and 2003). The average dissolved oxygen concentration during the TMDL study at the location just downstream from the wetland at RM 5.8 was 7.1 mg/liter. The average dissolved oxygen concentration during the TMDL study at the location of Listing ID 22369 at RM 4.7 was 7.7 mg/liter. The average dissolved oxygen concentration during the TMDL study at the location of Listing ID 7532 at RM 3.1 was 7.8 mg/liter. The average dissolved oxygen concentration during the TMDL study at the location of Listing ID 7529 at RM 2.5 was 7.3 mg/liter Any anthropogenic sources are therefore less than 0.2 mg/l DO decrease allowed from the natural headwaters at 7.1 mg D.O./liter.

Upper Chehalis Waters
Ecology has provided EPA staff with justification that the pH listings associated with the upper Chehalis River are from natural causes (see memorandum from Dave Rountry, Ecology). In summary, the waters are naturally pH-impaired (acidic) due to headwater (spring fed) swampland. This has been documented by site-specific descriptions of current land-use and ecologic conditions, including photos of wetlands. The memo also includes Federal U.S.D.A. data (literature?) showing very low pH media.

There is no known evidence of human actions compounding the naturally low pH conditions in these areas. In effect, the wetland areas have not been impacted by human activities because of the difficulty in converting the swampland to anything useable by humans. In fact, where livestock adjoin the wet sites or occur downslope, the sites are purposely fenced off so the animals are not mired in swamp. The impaired sites occur predominantly in sparsely populated and remote areas. Most are in the headwater areas of the upper Chehalis basin. In addition, if there were any human activities influencing this naturally occurring low pH, it would in fact cause the pH to rise.

On a secondary note, the BMPs for other Chehalis basin TMDLs provide crossover benefits for pH protection as well. The listed sites were first identified primarily while sampling as part of a general agricultural BMP assistance project. Problem sites were referred to local agricultural service agencies for remedial action. The site visits described in the memorandum for this assessment, document the BMPs that resulted. Even though the TMDLs didn't recommend BMPs for areas where impairments are caused by wetland conditions, the BMPs documented in the memo are consistent with the recommendations of the other TMDLs (The Chehalis/Grays Harbor Watershed Dissolved Oxygen, Temperature, and Fecal Coliform Bacteria TMDL, Detailed Implementation (Cleanup) Plan, Department of Ecology, Publication #04-10-065, November 2004).

In addition, the following are examples of some water quality improvement actions reported recently during a progress review for the Chehalis TMDLs. The Chehalis TMDL partners, including Ecology, are certain that the actions help reduce fecal coliform, bacteria, BOD, ammonia, and nutrient loadings. The water quality improvement actions also help ensure that human actions don't compound the naturally low pH impairments prevalent in the upper Chehalis basin.

Agricultural BMP improvements:
• Farm plans completed for 57 individual farms.
• 159 BMPs installed on 151 farm parcels,
• 6,609 Acres treated with agricultural BMPs to reduce fecal coliform, bacteria, BOD, ammonia, and nutrient loadings
• 50.6 miles of fencing and riparian planting installed in Thurston and Lewis CDs alone.

General actions to protect shorelines/ buffers:

Confederated Tribes of the Chehalis Indian Nation contribute significantly to fencing and riparian planting throughout the upper Basin. They often partner w/ the City of Centralia, Port of Centralia, Chehalis Land Trust, local classrooms to plant and protect riparian zones.

Land Acquisition for Perpetual Conservation:
Capital Land Trust and Chehalis River Land Trust continue to acquire land for perpetual conservation, with a special focus in the Black River subbasin of the upper Chehalis. This area is near the geographic center of the pH listings where more than 4800 acres have been conserved in recent years.

Lakes delisted for bacteria:
Hicks (Garrett) Lake, (listing #7484) – remarks have been modified to include the number of samples collected:
Changed from Category 5 to Category 2 on 01/05/06. The geometric mean was incorrectly applied because the sample set was less than 5. Only 1 sample value was collected in each of the years, 1998 and 1999. However, calculations show the percentile criterion was exceeded on 08/16/99.

Star Lake, (listing #10716) – remarks have been modified to include the number of samples collected:
Changed from Category 5 to Category 2 on 01/05/06. The geometric mean was incorrectly applied because the sample set was less than 5. Only 1 sample value was collected in each of the years, 1998 and 1999. Calculations show the percentile criterion was exceeded on 08/13/98.

Steel Lake, (listing #10717) – remarks have been modified to include the number of samples collected:
Changed from Category 5 to Category 2 on 01/05/06. The geometric mean was incorrectly applied because the sample set was less than 5. Only 1 sample value was collected in each of the years, 1998 and 1999. However, calculations show the percentile criterion was exceeded on 08/03/98.

Killarney (North Arm) Lake, (listing #10724) – remarks have been modified to include the number of samples collected:
Changed from Category 5 to Category 2 on 01/05/06. The geometric mean was incorrectly applied because the sample set was less than 5. Only 1 sample value was collected in each of the years, 1998 and 1999. However, calculations show the percentile criterion was violated on 08/13/98.

Echo Lake, (listing #12156) – remarks have been modified to include the number of samples collected:
Changed from Category 5 to Category 2 on 01/05/06. The geometric mean was incorrectly applied because the sample set was less than 5. Only 1 sample value was collected in each of the years, 1998 and 1999. However, calculations show the percentile criterion was exceeded on 08/13/98 and 08/16/99.

Fivemile Lake, (listing #10721) & Pine Lake (listing #12160)

Upon further review, 01/05/06 remarks added to these listings were incorrectly applied to this listing, as there are sufficient data to apply the geometric mean criteria. However, these waterbodies remain in Category 2 based on WQ Program Policy 1-11: 9/2006, p.21, par. 2. When data showing exceedances are not representative of the waterbody segment, such as data collected only in localized swimming areas, the segment will be placed in Category 2.

These data were collected to characterize the conditions in a localized swimming area and do not contain data collected outside this area. Therefore these data are not representative of the ambient conditions when the waterbody is not being used for primary contact recreation. (see WQP Policy 1-11, p19, par. 5.)

Waterbody segments moved into Category 4A:
The load allocations are established where improvements to water quality need to be measured so that water quality standards are met at all locations considered in the study area for a parameter.

After further investigation, Ecology concurs with EPA that the load allocations at two of the TMDLs mentioned, Stillaguamish and Upper Chehalis Rivers, may not lead directly to water quality standards being met in the segments proposed for category 4A. Listings 9777, 35386, 35393, 35394, 35395, 35396, 35940, and 43042 are returned to Category 5.

Two segments on Clearbrook Creek were inadvertently omitted in the administrative record submitted to EPA as part of the Johnson Creek TMDL report. Water segments upstream and downstream of the Clearbrook Creek segments received load allocations. Entities responsible for impacts in all segments along Johnson Creek in the TMDL study area are engaged in implementation of bacteria load reductions. Ecology regional staff confirmed that nearby load allocations and resulting implementation activities are improving the conditions that originally led to the 303(d) listings and the TMDL study. Water quality standards will be met in these segments as a result of the existing load allocations in the Johnson Creek TMDL.