

## INFORMAL NOTES

Washington Dept of Ecology: Sinclair Dyes Fecal Coliform TMDL

Local Review Meeting February 17, 2011

Norm Dicks Government Center, Bremerton

10:30 am to 2:30 pm

1. Overview of ENVVEST modeling and monitoring – Dr. Robert K. Johnston, U.S. Navy
  - Study included 39 stream locations, 58 stormwater outfalls, 44 shoreline drainages, 4 wastewater treatment facilities--Bremerton; Bremerton's Eastside Treatment Facility; Karcher Creek (now called South Kitsap Water Reclamation Facility [SKWRF]); and Fort Ward on Bainbridge Island.
  - Sinclair-Dyes stormwater monitoring events (Nov 2002 to March 2003) – almost 1300 samples collected
  - Hydrologic Simulation Program Fortran (HSPF) model developed to simulate watershed hydrology (storm and stream flow and surface runoff) during rain and non-rain periods. Land Use/Land Cover (LULC) loading based on 2000 land use conditions.
  - Estimated loading based on land use
  - Lower Clear Creek treated as stormwater basin
  - Marine modeling includes Mancini (1978) equations to account for fecal coliform die-off in response to salinity and ultraviolet light conditions
  - Marine modeling included effects of tidal variation on fecal coliform concentrations
  - "Canary nodes" – marine locations consisting of 9 marine grid cells selected for detailed review of results because of their proximity to known sources of bacteria
  - Model limitations – "We don't know enough about how the present leads to the future." Gregory Bateson
  - Modeled water quality impacts of "future expansive buildout scenario" from Kitsap County's Barker Creek Alternative Futures process. This relied on current loading patterns – in other words, fecal coliform loading typical of that associated with current land uses and human behavior, applied to a more intensely developed landscape.
  - "All models are wrong, but some are useful."
  - Model results, for each grid cell within the study area, were a 30-day moving average of the daily maximum fecal coliform concentration – these results were compared to the marine standards.
  - Nine canary nodes were predicted to have exceedances of standards during the modeled year (Water Year 2003; October 2002 – September 2003). For example, for the canary node representing the nearshore below Blackjack Creek, the grid cell with the highest fecal coliform concentrations was predicted to exceed standards 107 days during WY2003; the grid cell with the second highest fecal coliform concentrations was predicted to exceed standards 21 days during WY2003.
  
2. Questions and Answers – Modeling and Monitoring
  - Cami Apfelbeck, City of Bainbridge Island: Were Bainbridge Island nearshore marine FC data collected during storm events? Answer: Yes.
  - Larry Matel, City of Bremerton: What was the cost of the Navy ENVVEST modeling/monitoring effort? Answer: About \$1 million per year for 10 years (this includes ENVVEST monitoring for other programs.)

- Cami Apfelbeck: (comment) The 7 cfu/100 mL RSME (Root Mean Square Error) is high relative to the marine standard of 14 cfu/100 mL, but Bob's scale (evaluation of model results) calls it good.
  - Kathleen Cahall: Were TMDL load allocations (LAs) and wasteload allocations (WLAs) adjusted according to the goodness of model fit? Answer: No.
  - Vincent Akhimie: Does the model report represent official Navy policy? Answer: No. It is a scientific report.
3. Overview of Sinclair-Dyes Fecal Coliform TMDL and Implementation Plan – Sally Lawrence, TMDL lead for Ecology
- Objective of revised TMDL is to incorporate recent water quality data into analysis to develop LAs and WLAs.
  - TMDL received local support through early implementation actions that were started in the early 2000s. Water quality improvement has resulted from these:
    - i. Bremerton CSO reduction program
    - ii. Kitsap County Health District (KCHD) Pollution Identification and Correction projects
    - iii. Phase II NPDES stormwater permit for smaller municipalities issued January 2007
    - iv. 2010 Bremerton extended sewer collection line to Gorst community
  - Review of water quality (WQ) standards (freshwater standards are different for two different areas of this watershed; marine standards apply to marine waters throughout study area)
  - State Dept of Health and KCHD data for WY2009 and WY2010 used to assess progress
  - WY2010 rainier year, many more nearshore sites did not meet marine WQS.
  - LAs and WLAs based on WY2010.
  - Question: Does "Monitoring" in last column TMDL Table 22 indicate the location is on the "Watch List?" The last 8 stations got WLAs based only on WY2010, which was wet. Requiring monitoring would make more sense than establishing a WLA based on these data. Response: Using WY2010 to base LAs and WLAs adds conservatism to the TMDL.
  - Question: Does % reduction for nearshore below Blackjack Creek account for flow variability in the creek? Answer: Yes.
  - Comment: Blackjack nearshore exceedances are probably from seeps/stormwater/other shoreline sources, not Blackjack Creek itself, which meets standards. Response: The TMDL analysis separates data by season, and the WY2010 shows that Blackjack meets standards in the dry season but not the wet season. Acknowledged shoreline sources could still be a factor in nearshore exceedances.
  - Comment: Compliment on Ecology effort to incorporate recent water quality data and revise the analysis based on these data.
  - Comment: The TMDL should not require directing local resources to stream cleanup in cases where nearshore sources are the problem.
  - Explained TMDL Table 23, marine areas needing FC % reduction and marine WLAs.
  - Comment: Pahrman is correct spelling of creek. This is ephemeral/intermittent –dries up in summer. Does WLA still apply? Answer: Yes.
  - Comment: (from City of Bremerton, a challenge to Kitsap County.) County design engineers should be working on infiltration along Sinclair Inlet near Navy City Metals.

- Comment: Where water crosses jurisdictions, PIC projects have helped reduce marine FC in Dyes Inlet over last 8 years. Likes the recognition of current projects in the revised TMDL report.
- Comment: Phinney Creek is missing in figures.
- Explanation of decision to not require reduced FC limits in NPDES permit for Bremerton WWTP. No WLA assigned but Bremerton is on “Watch List” (required monitoring) because recently approved for re-rating (higher wintertime discharge).
- All WWTPs requested to provide GIS maps of sewer lines and assess frequency of repair of collection facilities that have had spills affecting marine waters.
- Reviewed monitoring requirements under the TMDL. Most locations covered under existing programs.
- Comment: (Terry Hull, Enterprise Cascadia) Interested in a legislative allocation that would help Enterprise Cascadia provide low interest loans for sewer repair and replacement.
- Comment: Recommended sewerage of Phinney Creek area and another area where soils unsuitable for onsite sewage systems.
- Comment: (Jana Ratcliffe, Washington Department of Transportation, TMDL liaison). WSDOT will have their permit amended in November 2011. Opportunity for WSDOT attention to new TMDLs approved by EPA.
- Comment: Appreciates this TMDL’s work to bring WSDOT into the region to address areas such as Wauga Way stormwater ponds which were not getting maintenance.
- Reviewed TMDL section headings, explained purpose of sections Margin of Safety, Adaptive Management, Reasonable Assurance, etc.
- Comment: Table 26 listing of SR (state highway) 304; should be SR303.
- Question: Recent TMDL guidance memorandum from U.S. Environmental Protection Agency would advise numeric permit limits for stormwater. Response: This guidance advised numeric limits only in cases where data available to support such limits. Most Ecology TMDLs (including this one) do not have sufficient data to support numeric limits.
- Comment: Why doesn’t Ecology designate this watershed as Category 4B because of all the implementation work that has been done? Response: There are a number of different NPDES dischargers to Sinclair and Dyes Inlets – wastewater treatment plants, state Department of Transportation, U.S. Navy, and four municipal governments covered under the Phase II municipal stormwater permit. No individual permittee has enforcement authority over the other permittees (4B required condition #5). Some of these permittees are significant sources of fecal coliform loading to the marine water bodies. For this and other reasons, Ecology views the TMDL process as the only appropriate approach for comprehensively addressing all the point and nonpoint sources in the watershed.
- Comment: Kitsap County notes that Ecology listened to criticisms about the TMDL in fall 2010 (including a 4B request) and responded appropriately. Perhaps Ecology could consider designating more Category 4Bs in the future.
- Bob Johnston noted: The TMDL assigns a lower FC target for Blackjack Creek (lower than the freshwater 100 cfu/100 mL – geometric mean; and 200 cfu/100 mL – 90<sup>th</sup> percentile) because of the need to protect marine receiving waters below Blackjack Creek. However, should future monitoring show that the creek is not meeting the stricter freshwater target but the marine area meets standards, then the TMDL is satisfied.

- Comment: Systematic random sampling can sometimes pick up an inordinate number of storm events.
4. Meeting adjourned at 2:30 pm with reminder that comments due March 31<sup>st</sup>.