



PUBLIC WORKS

August 10, 2011

Ken Koch
Water Quality Program
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Subject: Comments re category 5 listings for dissolved oxygen in Whidbey Basin waters and for station PSS019 (listing ID 10155) in particular

Dear Mr. Koch:

The City of Everett appreciates the opportunity to review and comment on the proposed 303(d) listings of marine waters in the Whidbey Basin. The City has, with the help of Lincoln Loehr, been active in reviewing and commenting on past 303(d) listings, and the City's comments today actually draw on that history. The City does not believe that the waters of the Whidbey Basin, including Possession Sound and Saratoga Passage should be listed as impaired (Category 5) for dissolved oxygen (DO). The City understands and appreciates that Ecology is engaged in further studies and dissolved oxygen modeling to help understand the behavior of our waters and the possible human caused effects on dissolved oxygen. The City asserts that it is premature to assign a Category 5 to these waters and that a Category 2 is appropriate while such studies and modeling is underway.

In 2008, Ecology listed station PSS019 (listing ID 10155) as category 5 (impaired) for dissolved oxygen. The original basis provided for category 5, which is still shown on Ecology's 2008 list, was a Grantham 2005 memo which in fact said it should be category 2 and was in fact used on the 2004 list as the basis for category 2. (see 2008 and 2004 listing information for station 10155) The City notes that for listing ID 10155, Ecology has changed the history of past listings and shows that it was listed as Category 5, not 2 in 2004. That needs to be corrected.

Following the presentation of the proposed 2008 list, the City commented on the incorrectness of using the Grantham 2005 memo as supporting a Category 5. In subsequent discussions with Ecology prior to finalizing the 2008 list, other reasons were offered by Ecology for a Category 5, all of which "demonstrated" that there was a trend of decreasing dissolved oxygen. One was an Albertson 2007 memo looking at the last 20 or so years of data. Lincoln Loehr identified that the Albertson 2007 analysis was affected by the different depth ranges sampled over that time (initially only sampled shallow, in later years sampled whole water column, and in the in-between time, sampled to various depths). The "demonstrated trend" was an artifact of the data set. Ecology agreed.

As discussions continued regarding the 2008 listing for PSS019, other analyses were presented by Ecology that homed in on 2003 to 2007 and purported to identify worsening trends for dissolved oxygen. Those analyses were based on combining all the data for each year. The mix of months that were sampled in the different years affected the analyses. Dissolved oxygen varies seasonally. A year that sampled all the months when high dissolved oxygen occurs, and rarely sampled the months with low dissolved oxygen will of course look better than a year that sampled all the months when low DO occurs and rarely sampled the months with high DO. That is what happened in the 2003-2007 data set. The identified trends were artifacts of the data set. Indeed, had there been a different mix of months sampled for the different years, it could have shown a trend of increasing DO and would have also just been an artifact of the data set.

The current draft 303(d) list is listing PSS019 and other stations in the Whidbey Basin as Category 5 for DO, and offers no analysis supporting the listing other than a staff decision that the levels observed are unlikely to be entirely natural. The exact wording from the listing follows:

"This listing was reviewed by Department of Ecology Environmental Assessment Program staff, who concluded that these excursions cannot be attributed solely to natural conditions. Further study and model evaluation will resolve the relative influence of human activity."

No other analysis is offered. It is a judgment call, and a judgment call of Category 2 could also be supported since it acknowledges that further study is needed to resolve the relative influence of human activity (and the water quality criteria for dissolved oxygen allow for some influence of human activity). While it may seem reasonable to allow for Ecology to make a judgment call here, the City has some concern with factors that may have influenced that judgment. Ecology, from the prior 2008 listing decision, has exhibited a belief (influenced by how they evaluated historic data) that the dissolved oxygen concentrations are trending downward, even though the actual basis given for the prior listing did not say that.

The attached spreadsheet is provided to show that there is no indication of a worsening trend in dissolved oxygen at PSS019. The spreadsheet uses Ecology's raw data (uncorrected) for 2003 through 2009, and presents dissolved oxygen profiles by month, for whatever years happened to sample during that month. The raw data are used instead of the corrected data, as that is what Ecology did in the earlier analyses. (Note that Ecology's corrected dissolved oxygen data for this station invariably show higher dissolved oxygen concentrations.) The raw data show some times when the probe obviously malfunctioned (such as July 2005 and October 2008). By presenting the data as monthly dissolved oxygen profiles it becomes apparent when some months were missed in some, or even many years. The 2003 to 2007 raw data set is the data set used by Ecology in their evaluation of the 2008 list that was discussed with Lincoln Loehr and was used to show a decreasing trend in dissolved oxygen over those five years based on lumping all the data points for an entire year and looking at the distribution. That analysis did appear to show a decreasing trend, but significantly, the earlier year(s) sampled more of the months that have high dissolved oxygen and fewer of the months that have low dissolved oxygen, and the later years did the opposite. A visual inspection of the monthly dissolved oxygen plots shows that there is no trend of decreasing dissolved oxygen over the years. In these plots we have added in data for 2008 and 2009 from Ecology's web site. (Data for 2010 are not yet posted on the web site).

The City believes that there is no evidence of a worsening dissolved oxygen condition in Possession Sound or other marine waters of Snohomish County. The City believes there is no basis for listing PSS019 as Category 5 and that Ecology's concerns warrant a Category 2.

Ecology's ongoing dissolved oxygen modeling effort may help to answer questions and support a Category 1, 2 or 5. When that information is available it can inform the next list. The justification used by Ecology for Category 2 for other dissolved oxygen stations, such as in the Strait of Juan de Fuca can be used, and actually is very similar to the justification statement used for Category 5 in that both statements rely on further study and model evaluation to resolve the concerns. The statement follows:

"This listing was reviewed by Department of Ecology Environmental Assessment Program staff, who concluded that these excursions could be attributed to natural conditions (i.e., this location is subject to intrusions of upwelled, low DO water) but may also be exacerbated by human activity. Further study and model evaluation currently in progress will resolve relative contributing factors to the excursions."

Although we have not gone to the effort to construct and review dissolved oxygen profiles for other stations near PSS019, the City believes that the following stations should also be Category 2 and that changes in the listing in the future may also be supported when the results of Ecology's DO modeling is complete.

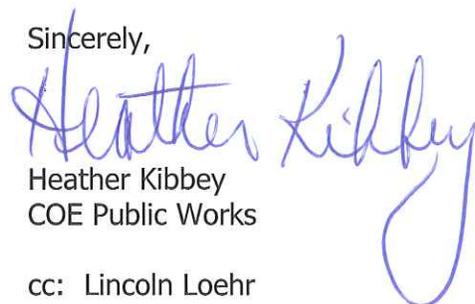
10123 – Port Susan
 66370 – Port Susan
 10135 – Saratoga Passage
 66537 – Saratoga Passage
 66701 – Saratoga Passage
 10139 – Skagit Bay & Similk Bay
 10155 – Possession Sound North (this is the PSS019 station)
 66373 – Possession Sound North (this is adjacent to the PSS019 station)
 49025 – Puget Sound (North-Central)
 49027 – Puget Sound (North-Central)
 49028 – Puget Sound (North Central)

The City notes that the last three stations are actually by Admiralty Inlet and a nearby station is Category 2 for DO (listing ID 66421).

Should you have any question about these comments you may contact Lincoln Loehr directly at 206 386-7686 or lcloehr@stoel.com.

Thank you for the opportunity to comment on the 303(d) list.

Sincerely,



Heather Kibbey
 COE Public Works

cc: Lincoln Loehr