

July 4, 2022

Electronic Public Comments Submittal

RE: Comments on the draft Budd Inlet Total Maximum Daily Load for Dissolved Oxygen: Water Quality Improvement Report and Implementation Plan, Publication 22-10-012 (draft TMDL)

Introduction and Background

Utilizing data from 2003 and 2004, as well as historical data, Ecology developed information for a computer model that would be used as the basis for creating a Technical Report for the TMDL, titled Deschutes River, Capitol Lake, and Budd Inlet temperature, fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load. A draft report was issued in December 2011 and finalized in June 2012. During this time, Ecology convened an Advisory Committee, which met regularly to understand Ecology's work, raise questions, provide both technical and citizen input and act as a sounding board for Ecology's progress. That was over ten years ago, but even then, Ecology had already determined the following, as stated in the Draft Report, Executive Summary, Page xxi:

With Capitol Lake in place, more of Budd Inlet would violate standards for DO under critical conditions than with a restored Deschutes estuary. In the area currently covered by Capitol Lake, the estuary alternative would increase DO concentrations compared with levels in the lake.

Despite the following:

- serious questions regarding the validity of the model have been ignored,
- freshwater DO in Capitol Lake will always be substantially higher than marine water DO in an estuary, negating the second assertion in the above Ecology statement,
- introduction of new information not previously recognized by Ecology has not been acknowledged or taken into account,
- current sampling has not been used to validate the model inputs and conclusions,
- separation of the TMDL into two parts because of complications with the Capitol Lake/Budd Inlet portion has caused extended delays,
- development by Ecology of an overarching DO study of the Salish Sea (PSNSRP) conflicts with some of the assumptions in this TMDL and
- the Advisory Committee has been disbanded during the Capitol Lake/Budd Inlet portion of the TMDL thus essentially eliminating public input.

Ecology has steadfastly clung to the position that an estuary is better for DO than the lake. This "self-fulfilling prophecy" appears to have driven Ecology's approach throughout the development of this TMDL.

Comments

1. A thirty-day comment period for this TMDL is not appropriate. Much has changed since the original technical report in 2012, such as a new "bubble allocation", the development of the Salish Sea Model, EPA's designation of the Capitol Lake basin as a river versus a lake and the idea that 'carbon' plays a significant role in the DO levels in Budd Inlet. Because the Advisory Committee was abandoned several years ago, and Ecology has developed this Budd Inlet portion of the TMDL with minimal additional public

involvement or input, I recommend that the Advisory Committee be reconstituted and a significant period of time be devoted to review. It is not reasonable for Ecology to take several years to develop this part of the TMDL without public input, and then expect the public to review and understand, and then provide comments on this extensive report in 30 days. This is particularly relevant in light of the parallel development of the Salish Sea DO Study, which needs to be coordinated and harmonized with this TMDL.

2. (Page 15) This section describes DO levels as a key element for fish habitat, rearing, spawning and migration. Because Budd Inlet has marginal DO, this TMDL is required to establish required DO levels, both in Budd Inlet and the Capitol Lake Basin. In the 2012 Technical Report, Capitol Lake was considered as a “lake” and under WA regulations did not meet DO standards despite having the highest DO in the Deschutes River watershed and Budd Inlet. However, EPA in their review following their rejection of the upper Deschutes TMDL, determined that Capitol Lake met the regulatory requirement as “riverine” which has a regulatory determined DO requirement. As such, Capitol Lake now greatly exceeds the minimum DO requirements, and is generally about twice the level that occurs in Budd Inlet marine waters.

The current TMDL should be modified to clearly state that Capitol Lake has always exceeded DO standards, providing excellent fish habitat, and that replacing it with an estuary that will fill twice daily with Budd Inlet marine waters will result in DO levels that are marginal at best, depending on the success of this TMDL to improve conditions. Also, toxic material from the marine waters of Budd Inlet will be introduced with tidal flow to the basin. Should this introduction of toxics and low DO marine waters be considered for the application of anti-degradation rules for the Capitol Lake Basin?

3. (Page 10 and elsewhere) The 2012 Technical Report (Pages 202-203) described the Nitrogen loads from various sources that lead to DO losses in Budd Inlet. (no mention of Carbon) I noted then that the Open Boundary provided 93 percent of the total Nitrogen per day, while the rivers, primarily the Deschutes, provided 6 percent. I questioned whether the TMDL was focusing on the most appropriate source of Nitrogen, in looking only for improvements in the Deschutes watershed, particularly in light of the extremely high DO in the water released from Capitol Lake. I then realized that during the critical summer months, the Nitrogen uptake by plant growth in Capitol Lake essentially reduced the Nitrogen to zero. It appeared at that point that not only was the flow from Capitol Lake high in DO, but it was also low in Nitrogen, and thus was of benefit to Budd Inlet, contrary to the model predictions.

The next I heard, Ecology determined that it’s not actually the Nitrogen that causes the problems in Budd Inlet DO, it’s the Carbon from the macrophytes (plants) that die and enter Budd Inlet from the lake. When pointed out that the plants don’t begin die-off until after the critical summer season, Ecology determined that it was really the algae, and algae goes over the Fifth Avenue dam throughout the year. I suggested testing the water in Capitol Lake for nitrogen levels, for algae levels and looking at the feasibility of macrophyte harvesting. I am unaware if any of these suggestions have been acted on.

Now we are presented with this TMDL for review. The “Open Boundary” has been replaced with a new “bubble allocation”, which projects using data generated by the Salish Sea model (PSNSRP). Where the “Open Boundary” was previously estimated at 93 percent of the total, the “Bubble Allocation” is now a little over 88 percent; still an overwhelming contribution. My question regarding whether the TMDL was focusing on the most appropriate source for deficient DO still remains.

4. (Page 14, Fig 2) The lower right-most cell in Figure 2 is primarily East Bay. In most of the prior reports, this cell has been noted as the most extreme example of low DO. And I suspect that is also the case here.

I have maintained since the beginning of the Advisory Group meetings, that this cell should not be included because it is primarily an intertidal area, which is excluded from assessing violations in WA regulations. Additionally, in reviewing notes provided by Ecology from a PSNSRP WebX meeting in September 2021, they also excluded intertidal areas from their analysis. These excluded areas were defined as “masked” and excluded from evaluation for DO standards. I recall from the Ecology maps that both the East Bay and parts of West Bay were excluded. Please review this and confirm that Ecology is consistent in this TMDL and the PSNSRP in their analysis of areas such as this. If these critical intertidal or masked areas are excluded from the model analysis, how does this impact the TMDL analysis? Again, Ecology needs to coordinate and harmonize this TMDL analysis with the PSNSRP.

5. (Page 11) 1997 was selected as the ideal model year because it was the worst year for DO. In other words, you are using data for model calibration that is twenty-five years old. I’ll let others comment on the advisability of this approach, but allow me to quote one person’s thoughts on models:

Models are useful. They give you some idea of what to expect, and they can be useful for planning; for example, for the number of hospital beds you’ll need or the number of ventilators you’ll need. But, my experience over many years, Judy, has been that you have to be careful that you don’t wed yourself so completely to a model, because the models, I’ve said often and I’ll keep saying it, are as good as the assumptions you put into the model. But, having lived through and experienced multiple outbreaks from HIV aids, to ZIKA, to Ebola, I can tell you that as often as not, the models can be misleading. So, you have to use them to the extent that they are valuable, but don’t be strictly adhering to it to the point that you’re going to be frozen to what you’re going to do.

Dr. Anthony Fauci, PBS News, April 3, 2020

6. (Page 15) This TMDL does not address parameters such as bacteria, copper, nickel and toxins that are currently found in the inner harbor of Budd Inlet. These same parameters are not present in Capitol Lake. Although I understand that these 303(d) parameters are not a part of this study, it is important to recognize and consider that opening up the Capitol Lake Basin to the marine waters of Budd Inlet will expose the entire basin to this contamination. Should the minimal improvement in DO in Budd Inlet supersede the contamination of this relatively pristine water body? Is this not a violation of the anti-degradation rules? And what about the rules relating to water quality for salmon habitat and migration?

7. (Page 17) The Dissolved Oxygen Deficit is defined as the difference between the numeric DO criteria as defined by the WQS and the actual measured DO concentration at a given place and time. This DO deficit provides the basis for establishing violations, which in turn sets the targets for this TMDL to meet water quality standards. The paragraph goes on to say that the Budd Inlet model is used to determine the impact on DO. But shouldn’t the deficit be determined by current actual measured DO concentrations, rather than the results of a “model”, particularly when that model was developed using twenty-five year old data? Of course, I understand that actual sample results cannot be taken for the alternative configuration of an estuary, or for other “what if” situations. However, this section describes only the DO deficits that occur with the present Capitol Lake configuration, and which form the basis for setting numeric targets for nutrient loadings.

8. (Page 37-38) The proposed allocation for DES for Capitol Lake assumes an estuary configuration that has not existed for over seventy years, when the Fifth Avenue tide lock was installed. Returning to this

“natural condition” is, under the most optimistic of scenarios for dam removal, about 10 years and \$500 million away. And this “natural condition” with a 500 foot opening to Budd Inlet, never really existed, anyway. The historical opening was closer to 2000 feet before the isthmus was created and when major portions of downtown Olympia were part of the intertidal mudflats. Shouldn’t the existing lake configuration be considered for establishing the basis for the allocation for DES, and then if this scenario is not sufficient to meet water quality standards, DES should be tasked with making corrections. Using some “mythical” natural conditions as the benchmark seems arbitrary and illogical. Is this a case of the “self-fulfilling prophecy” mentioned earlier?

9. (Page 56-Introduction) This section repeats the statement that Capitol Lake is the largest contributor to DO depletion within Budd Inlet. While this may be technically correct, it ignores the contribution of areas North of Budd Inlet, i.e. the bubble allocation. It further states that the water quality standards cannot be met under current conditions with the dam in place. Isn’t that why we have this TMDL: so that allocations can be made among all contributors, including those north of Budd Inlet? Next, it states that with the dam removed, standards can be met, as long as the other contributors take additional action to reduce sources. Doesn’t the same criteria apply to the current lake scenario? Wouldn’t the standards be met if other contributors take additional action to reduce sources, including the bubble allocation area? And finally, it is stated that Ecology has not determined if any lake redesign or management scenario can meet standards with the lake in place. Why not? Shouldn’t AKART rules be applied to guide DES in making improvements. What about plant harvesting in the lake? What about algae skimming? What about developing a better flow regime through the tide-lock that would change circulation patterns? What about using actual sample results rather than using the projections of a questionable model?

Does it make sense to recommend spending \$500 million and a multi-year disruption in Olympia without at least examining some of these alternatives? Because dam removal is irreversible and many years away, wouldn’t it be more prudent to take a little time to look at potential lake changes, and coordinate this TMDL with the more comprehensive Salish Sea DO Study? Perhaps this approach would also allow Ecology to reconstitute the Advisory Group; tapping into the collective knowledge in the local area and help meet Ecology’s public input commitment.

10. (Page 61) The same comments apply here as previously noted above (Comment 9). This section also confirms the DES estimate that planning and design for the estuary alternative will take three to five years, and construction an additional four to eight years. This extended time frame provides plenty of time for Ecology to respond to TMDL comments, undertake additional sampling and evaluate potential lake improvements (adaptive management). This could result in less disruption, enhanced environmental and recreational benefits and substantial savings for the community.

11. (Page 67) Notably missing from this list of Federal, tribal and state entities is the U.S. Corps of Engineers. Do they have a role to play in determining the viability of Ecology’s recommendations? Shouldn’t they be consulted regarding the potential for sediment accumulation in both Budd Inlet in general and the Port of Olympia in particular, as a result of Ecology’s recommendations? When COE’s mandate to maintain the navigation channel conflicts with EPA’s mandate to maintain water quality, how is this resolved between the two federal agencies? Shouldn’t this contingency be discussed and evaluated in this report?

12. (Page 77-79) Table 35 requires that DES ensure that their preferred alternative meets the Budd Inlet TMDL allocation by the end of 2022, and that the lake (presumably an estuary) meets the TMDL allocation

by 2026. However, Table 36 doesn't call for Ecology to complete the PSNSRP, including establishing nutrient reductions to achieve the "bubble allocation" until 2024. This appears to be a "cart before the horse" situation. Because the nutrient levels from above the Northern Boundary are such an overwhelming contributor to the DO deficit, a small deviation could result in completely changing the Budd Inlet TMDL allocations. Is it possible that even a modest change in the bubble allocation could obviate the need for any changes in the other discharges to lower Budd Inlet? This bubble allocation appears to be an excellent place to do a sensitivity analysis.

13. (Page 90-94 Costs) This section references costs estimated by DES in their draft EIS. These cost estimates have come under serious question during their draft review process. Infrastructure costs for the various alternatives vary widely and many are inconsistent with historical data. However, overwhelming even these infrastructure costs, are the estimated long-term sediment disposal costs. The underlying assumptions which were used to estimate the disposal costs for each alternative were inconsistent, resulting in potential swings of several hundred million dollars. Including this DES cost information from the draft stage of their EIS is misleading for those evaluating your TMDL report, and should be deleted. This is particularly true of Table 44, which is a duplicate of an EIS table in their draft EIS. As further support for this comment, the following quote is from the Capitol Lake Improvement and Protection Association response to EIS, "Comments On The Draft Environmental Impact Statement For Capitol Lake / Deschutes Estuary":

Creating a new analysis for the estimated costs, based on the real-world, actual information that has been ignored in the Draft EIS, would have profound implications for the comparative costs for the three active alternatives. In round numbers, the overall cost for the Managed Lake Alternative would drop by about \$260M, while the Estuary Alternative would increase by about \$200M and the Hybrid Alternative would increase by about \$275M. This would make the Managed Lake the least costly at somewhat less than \$200M, while the Estuary would be next at about \$450M and the Hybrid the most expensive at about \$600M.

14. (Page 104-106) The essence of adaptive management is to create small, incremental changes and then evaluate the results. If the change results in improvement, then additional steps can be taken. If not, then the change can be reversed and a different change can be made. But, adaptive management doesn't work if major, irreversible changes are undertaken during a project. This is the case for the primary recommendation of this TMDL. Once the Capitol Lake dam is removed, there is no going back. This is an irreversible, fundamental change to the system. If the model predictions are not realized, or other problems result (i.e. toxics enter the basin, sediment damages Budd Inlet and the Port, flooding increases, etc.) then the community is stuck with the consequences, and has wasted precious time and resources that could be used elsewhere. The feedback loop, presented in Fig. 9, includes Step 3b when the results are off target. This step is inappropriate for this project. In fact, the whole generic adaptive management discussion is misleading and should be replaced with a cautionary statement about irreversible changes and the potential for unintended environmental and financial consequences.

Respectfully,

Robert Holman

