FISH PASSAGE CENTER

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February 14, 2019

Heather Bartlett, Water Quality Program Manager
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Comments on Draft Environmental Impact Statement: Short-term modification of total dissolved gas criteria in the Snake and Columbia Rivers.

Dear Ms. Bartlett-

Thank you for the opportunity to review and provide comments on the Draft Environmental Impact Statement for the short-term modification of total dissolved gas criteria in the Snake and Columbia Rivers (Draft EIS). We offer the following comments for your consideration in the development of the final EIS, followed by more detailed discussion.

- The Fish Passage Center has collected and analyzed Gas Bubble Trauma Monitoring data for over two decades. These data are available to the public. These data support the proposed action of removing the 115% forebay criterion and implementing a 120% or 125% tailrace criterion.
- A more extensive and longer time series of GBT Monitoring data is available for inclusion in the EIS, which supports the proposed action. This reference will provide further support for the proposed action.
- In response to recommendations from the Independent Scientific Advisory Board, the Comparative Survival Study Annual Report included an analysis of total dissolved gas and instantaneous mortality. This analysis provides additional scientific basis for the EIS. This reference will provide further support for the proposed action.
- To avoid confusion, the EIS should specify that the objective of the experimental flex spill is to avoid powerhouse passage of juvenile salmonids.

Flex Spill Operations Discussion

Throughout the Draft EIS, there are several references to the Comparative Survival Study (CSS) model (or technical analyses conducted by the states and tribes) predicting that the flex spill operation would slightly benefit salmon relative to the 2018 court-ordered operations (pg. 2, 10, 18, 22, 44, 50). Many of these references specifically note that survival rates under the Flex Spill operation will roughly equal (in 2019) or exceed (2020 and 2021) those from the 2018 court-ordered operations. To encourage a clear understanding of the experimental flex spill operation, we recommend that all references to CSS model predictions and other analyses of potential benefits of the flex spill operations are based upon predicted reductions of juvenile salmonid powerhouse passage. CSS analyses indicate that reductions in powerhouse passage are associated with increased juvenile survival (McCann et al. 2018) and increased SARs (McCann et al. 2016, McCann et al. 2017).

Additional Supporting References from the Smolt Monitoring Program to Consider in Review of Effects of Total Dissolves Gas

The Draft EIS provides a lengthy review of literature on the effects of total dissolved gas (TDG) on resident and anadromous fish. However, this review only briefly mentions results from the GBT Monitoring that is conducted at FCRPS projects, under the SMP (pg. 27). Furthermore, the single reference to GBT Monitoring data references a 2018 FPC memorandum (FPC 2018a) that highlights results from the most recent 10 years of GBT Monitoring data. The FPC has an agreement with the Corps of Engineers (COE) to summarize, annually, the results from the GBT Monitoring Program. The FPC provides this report to the COE. The COE then includes this report as an Appendix in their annual report to the Oregon Department of Environmental Quality (DEQ). These annual reports to the COE are also made available to the public on the FPC website (http://www.fpc.org/documents/FPC_documents.html). We recommend that WA DOE review the 2018 report (FPC 2018b) and use this as a reference in their review of studies on the effects of TDG.

In our 2018 report (FPC 2018b), we provide a Historical Summary (pg. J-18 through J-20) of data from the GBT Monitoring Program over the last 20+ years, including an analysis of GBT incidence rates and TDG in the upstream tailrace. Over the 20+ years of data, there were 2,870 total GBT samples that fit our sample size criteria for inclusion in this analysis. Of these 2,870 GBT samples, only 37 had GBT incidence rates that met or exceeded the 15% action criterion. Of these 37, a total of six are considered anomalous and can be attributed to late migrating steelhead smolts or issues with misidentifying deformed fin rays for signs of GBT. The remaining 31 samples where GBT incidence rates exceeded the 15% action criterion all occurred when TDG was greater than 120%. Of these 31 instances, 28 (90.3%) were observed at TDG concentrations greater than 125% (see Figure J-9 of FPC 2018b). It is important to note that, although there were 28 instances where the 15% action criterion was met when tailrace TDG levels exceeded 125%, there were 288 additional GBT samples whose associated tailrace TDG levels were ≥125% that had fin GBT incidence rates below the 15% action criterion. These historical analyses of GBT Monitoring data indicate that the action criterion is generally not triggered at TDG levels less than 120% in the tailrace and even rarely triggered at tailrace TDG levels of 125% or above. As the Draft EIS states, “this action level incorporates a margin of

safety based on studies finding significant mortality does not occur in test fish until approximately 60% of a population is showing signs of GBT".

Additional Supporting References from the Comparative Survival Study to Consider in Review of Effects of Total Dissolves Gas

In addition, the CSS has included TDG in recent analyses of instantaneous mortality (see Chapter 3 of McCann et al. 2018). Results from these analyses indicate that the Relative Variable Importance values for the TDG variables (average TDG or maximum TDG) were low compared to other variables, indicating that the TDG variables were not consistently included in the top fitting models for explaining variation in instantaneous mortality. In addition, the model-averaged coefficients of the effects of TDG were all near zero and confidence intervals overlapped zero for all species and reaches analyzed. This indicates that there was little association between TDG levels and instantaneous mortality rates. We recommend that WA DOE review Chapter 3 of the 2018 CSS Report (McCann et al. 2018) and include this in their review of studies on the effects of TDG.

Again, we thank you for the opportunity to review and comment on the Draft EIS. Please do not hesitate to contact us is you have any questions or concerns regarding our comments. We are happy to work with WA DOE on future issues related this short term modification of TDG standards or potential rule change.

Sincerely,

Michele DeHart
Manager, Fish Passage Center

References:

Fish Passage Center. 2018a. Smolt Monitoring Gas Bubble Trauma and River Conditions. May 8, 2018. http://www.fpc.org/documents/memos/25-18.pdf

Fish Passage Center. 2018b. 2018 Annual Report to the Oregon Department of Environmental Quality. http://www.fpc.org/documents/misc_reports/69-18.pdf

McCann J. B. Chockley, E. Cooper, T. Garrison, H. Schaller, S. Haeseker, R. Lessard, C. Petrosky, T. Copeland, E. Tinus, E. Van Dyke, and E. Ehlke. 2016. Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye. 2016 Annual Report. BPA Project #19960200. http://www.fpc.org/documents/CSS/CSS_2016_Final.pdf

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