EARTHJUSTICE

May 29, 2019

VIA ONLINE COMMENT SUBMISSION PORTAL:

Maia Bellon, Director
Heather Bartlett, Water Quality Program Manager
P.O. Box 47600
Olympia, WA 98504-7600

Re: Comments on May 8, 2019, Scoping Notice re EIS to Consider Changing Total Dissolved Gas Standards for Lower Snake and Lower Columbia Rivers and Other Matters

Dear Director Bellon and Program Manager Bartlett:

On behalf of Sierra Club, Columbia Riverkeeper, Save Our Wild Salmon, Northwest Sportfishing Industry Association and their members, we submit these scoping comments for an EIS Ecology is preparing to address changing the water quality standards for total dissolved gas (TDG) in the lower Snake and lower Columbia Rivers to allow TDG of up to 125% under certain circumstances on a permanent basis. We support this modification for the reasons described below.

The TDG standard change Ecology is considering would replace the current TDG standard for dams on the lower Snake and Columbia Rivers with a tailrace TDG standard of 125% of saturation subject to the biological limitations of the current water quality standards (e.g., triggers for gas bubble trauma or GBT). This would be a permanent change in the water quality standards for TDG, not a limited, short-term modification such as the one Ecology adopted for the Spring of 2019.

A number of organizations, including some of the organizations signing this letter, submitted to you a request for a change to the TDG standards on September 13, 2018. We believe that request continues to describe the legal and scientific basis for modification of the TDG standards at the lower Snake and lower Columbia River dams to allow voluntary spill to benefit salmon up to 125% TDG. We believe this TDG standard is biologically appropriate for both the spring and summer voluntary spill seasons and should be adopted as a permanent, year-round standard. Such a standard, by itself, would not require spill to 125% TDG in either spring or summer or for any particular period of time during the day, but would allow for spill up to that level during the juvenile salmon migration seasons and for longer periods of time than the current short-term modification of the TDG standards.

Such a change to the water quality standards for TDG is entirely consistent with the current interim Flexible Spill Agreement as it would not conflict with the dam operations during

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the Spring juvenile salmon migration season contemplated for the spring of 2020 and 2021 under the Agreement.

As explained in prior letters and comments, there is compelling evidence and a sound legal basis for Ecology to eliminate the current 115% forebay TDG limit at each dam and replace the existing 120% tailrace TDG limit with a limit of 125%.

We believe that upon examination of the best currently available scientific information about the effects of TDG levels up to 125% in the dam tailraces, and analysis of any other alternatives you choose to consider, you will conclude that modification of the TDG standards to allow TDG up to 125% in the dam tailraces beginning in 2020 is the best alternative to protect beneficial uses in the lower Snake and lower Columbia Rivers and that such a standard poses minimal or no risks to any designated use. It also will not have significant adverse environmental impacts.

We offer the following comments and observations in support of this conclusion:

First, as noted above, a modification of the TDG standards to allow TDG levels up to 125% in the tailrace at each dam is consistent with the current Interim Spill Agreement and important to support alternatives for dam operations that the federal agencies are considering and may select in their ongoing CRSO EIS process. The Interim Agreement is based on elimination of Washington's 115% forebay TDG standard starting in 2019 and continuing through 2021, flexible spill to a 120% tailrace TDG standard in 2019, and similar flexible spill to a 125% TDG tailrace standard in 2020 and 2021 (or until the federal agencies complete new records of decision for dam operations). It is important to recognize that this Agreement does not purport to limit in any way Ecology's authority to consider and adopt a permanent change to water quality standards that would allow spill to a 125% tailrace TDG standard starting in 2020, nor would such a modification conflict with the Spill Agreement.

Second, the long-running Comparative Survival Study (CSS) provides a sound biological basis for setting a TDG standard of 125% of saturation. Ecology's description of this extensive study and analysis in the DEIS and FEIS for the current short-term modification, however, understates the level of support the CSS analyses provide for a 125% tailrace TDG standard in potentially significant ways. First, while the CSS analyses focus on reducing "powerhouse encounters" through increased spill, the analyses omits at least two additional benefits of increased spill: (1) reduced predation of juvenile migrants in reservoirs from faster migration travel time and reduced holding time above dams; and, (2) reduced water temperatures from faster water transit time, especially as the spring season progresses, in summer, and in lower water years in spring and summer. While the CSS analysis does not attempt to quantify these survival benefits, they do exist as the analyses recognize, and they may be significant. The recent DEIS/FEIS for a short-term modification of water quality standards suggests that the only benefit of increased spill addressed by CSS is a reduction in "delayed mortality." This is very likely not the only benefit of increased spill for downstream juvenile migrants. And this

characterization of the CSS study is potentially confusing and unreasonably limiting given the longstanding discussion of the precise amount of "delayed mortality" that occurs.

Third, recent DEIS/FEIS fails to clearly and adequately acknowledge that the CSS analyses are based on decades of empirical evidence about the effects of spill and TDG levels on juvenile spring migrants, including effects at TDG levels well above 125% (during, for example, frequent periods of involuntary spring spill). This empirical evidence includes results measured against well-established "action levels" for GBT. This empirical evidence on GBT indicates that spill to 125% TDG is safe for juvenile salmon. All of this evidence makes it clear that establishing a 125% TDG water quality standard would be both legally and biologically appropriate.

Fourth, there is extensive evidence of the effects of spill and the incidence of GBT at TDG levels well above 125%. This evidence comes from actual data collected during frequent periods of involuntary spring spill over many years. This evidence shows quite clearly that the incidence of GBT in juvenile salmonids is well below existing action levels (which are quite conservative) at spill that causes TDG up to 125%. Above 125%, the incidence of GBT increases somewhat in some circumstances but usually does not reach levels of concern until TDG is at or above 130%. This evidence confirms that a TDG standard of 125% at the dam tailraces would be appropriate.

Fifth, Ecology should take care in this EIS to explicitly recognize the difference between laboratory studies with extended exposures and no depth compensation, and field studies and other empirical evidence about the effects of spill and TDG levels up to 125% on salmonids or other aquatic life. This will avoid leaving the potentially misleading impression that there is considerably more uncertainty about the benefits and risks of spill than the data warrants. For example, in the past, Ecology has described a number of laboratory studies reporting high incidences of GBT but failed to discuss how these conditions relate to conditions juvenile salmon are likely to experience in the Snake and Columbia rivers during periods of voluntary spill. Many of these studies involve continuous exposure to elevated levels of TDG for 60 days, 50-55 days, 40 days, 22 days and so on. Many of these studies also provide limited opportunities for depth compensation. It is not clear that this kind of continuous exposure to TDG at 125% in laboratory conditions is likely to occur during actual voluntary spill operations.

Sixth, in the past, Ecology has also said that NOAA Fisheries' COMPASS model is "less optimistic about the benefits of additional spill" and attributes this to Ecology's understanding that the COMPASS model "does not factor in the same assumptions about delayed mortality as the CSS model." It is not immediately apparent that the CSS model makes any assumptions about delayed mortality. It is based on empirical data about juvenile downstream survival and associated smolt-to-adult return rates. Ecology may want to seek clarification from the authors of the CSS model regarding this statement. Similar statements about the CSS model that may reflect a misunderstanding of it have appeared in other places in Ecology's past analyses and also should be checked and corrected as appropriate.

Seventh, in the past Ecology has described and relied on a number of studies of the effects of TDG on early salmonid development and on juveniles. The relevance of these early stage studies to setting TDG levels at mainstem dams is not apparent. Ecology may want to explain exactly where early stage salmonids are likely to encounter elevated TDG levels of up to 125% from voluntary spill, other than chum salmon below Bonneville dam where there are already measures in place to protect them (which Ecology seems to accept as effective). The studies of the effects of TDG on juvenile salmonids also are not tied to conditions these fish are likely to experience during their downstream migration. For example, in a past analysis Ecology has identified one more relevant study which reports that data on the incidence of GBT from five unidentified Columbia and Snake River dams failed to show effects above action levels for GBT set in the 2000 FCRPS BiOp until TDG exceeded 130%, but this relevant information is simply reported along with other information and is not further addressed. At the same time, Ecology describes another study that reports a much higher incidence of GBT at two mid-Columbia dams where TDG levels apparently "exceeded 120% for approximately two months" but fails to describe when, how often, or how likely these extended conditions occur in the lower Snake and lower Columbia rivers under voluntary spill conditions and so does not provide a basis for assessing the relevance of this study to a TDG standard.

Eighth, to the extent Ecology again plans to consider studies on the effects of elevated TDG levels on smallmouth bass and other resident fish, including northern pike minnow, it should explain its basis for considering these studies. If Ecology is identifying these specific studies in order to use both smallmouth bass and northern pike minnow as stand-ins for species, which may or may not be native and may or may not be predators of salmon, it also should recognize that smallmouth bass and northern pike minnow (and presumably other native resident species which occupy the Snake and Columbia Rivers) are able to use depth compensation as well as or more effectively than juvenile salmonids to avoid potential adverse impacts from gas super saturation up to and including 125% TDG. This is especially important since these fish have thrived in the warm reservoirs above the dams in ways that would not occur in a free-flowing river and these species are significant predators of juvenile salmonids. Ecology may want to explain, for example, why it is concerned about impacts on smallmouth bass when they are not facing extinction and are actually contributors to the extinction risk facing salmonids, to a large extent because of the advantage an impounded river gives them.

Ninth, to the extent Ecology expects to address the effects of TDG on aquatic invertebrates in its EIS, it also should fully describe the numbers and spatial distribution of aquatic invertebrates as well as the likelihood that they will be present in significant numbers in dam tailraces where the current is strong and TDG levels are likely to approach 125% under a revised TDG standard.

Tenth, in its prior EIS for a short-term modification of the TDG standards, Ecology described a number of what it apparently considers relevant areas of uncertainty regarding the effects of allowing voluntary spill at levels of up to 125% TDG. As with most areas of scientific inquiry, there are always areas of uncertainty that can be identified. The issue is how relevant are these uncertainties to the decision at hand. Ecology's prior discussion of uncertainty does not

address this and similar questions or describe the extent to which the CSS analyses (and other available information) indicate that the existing areas of uncertainty are not actually that material to a decision about whether to adopt a 125% tailrace TDG standard. For example, Ecology has stated that "further research may be necessary" to determine whether current levels of TDG are having an adverse impact on mainstem salmonid spawning but Ecology fails to identify where such spawning occurs and how and why a modification of tailrace TDG limits would affect TDG levels in these areas. As noted above, one of the most significant such areas is chum spawning below Bonneville dam where mitigation for potential TDG impacts is already in place.

Eleventh, Ecology has said in a prior EIS that eliminating the 115% forebay TDG standard and implementing a 120% TDG standard for 2019 on a flexible basis as proposed in the Spill Agreement would lead to a miniscule reduction in powerhouse encounters (and hence presumable a miniscule improvement in survival) as compared to 2018 spill and TDG levels. At the same time Ecology has reported that eliminating the forebay standard and allowing tailrace TDG up to 125%, even on a flexible basis, would reduce powerhouse encounters by about 20%, a larger (but still inadequate) change that should lead to correspondingly larger survival improvements. These statements support a modification of water quality standards to allow TDG levels up to 125% in the tailrace at each dam to better protect downstream migrating juveniles.

CONCLUSION

Voluntarily spilling water over the dams on the Snake and Columbia rivers during the juvenile migration seasons undeniably benefits salmon and steelhead. While spill can pose a risk to salmonids if TDG levels are too high, biological monitoring conducted over the last decade and more, as well as anecdotal evidence, demonstrates that tailrace TDG levels up to 125% do not negatively impact migrating salmonids, resident fish, or invertebrates. By contrast, the TDG levels currently allowed under Washington's water quality standards unnecessarily limit the benefits of spill for juvenile salmon and steelhead migrating downstream in the spring. We thus urge Ecology to analyze in its EIS and adopt a change to its water quality standards to eliminate a forebay TDG limit and allow TDG levels up to 125% of saturation in the tailrace of each of the eight dams on the lower Snake and lower Columbia Rivers beginning in 2020.

Thank you for your consideration of these comments.

Sincerely,

Todd D. True

cc: Bill Arthur, Sierra Club
Lauren Goldberg, Columbia Riverkeeper
Joseph Bogaard, Save Our Wild Salmon
Liz Hamilton, Northwest Sportfishing Industry Association