Earthjustice

Please see attached letter regarding comments on draft EIS for Short Term Modification of total dissolved gas standards for federal dams on the lower Snake and lower Columbia rivers.

EARTHJUSTICE

February 28, 2019

VIA ELECTRONIC SUBMISSION

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

Re: Comments on Draft EIS for Short-term Modification of Total Dissolved Gas Standards for Federal Dams on the Lower Snake and Lower Columbia Rivers

Dear Director Bellon and Program Manager Bartlett:

On behalf of the ten fishing and conservation organizations identified at the end of this letter and their thousands of individual members, we submit these comments in response to the draft EIS issued by Ecology in January, 2019 for a short-term modification of total dissolved gas (TDG) water quality standards for federal dams on the lower Snake and lower Columbia rivers through 2021.

A number of organizations, including some of the organizations signing this letter, submitted to you a request for a short-term modification of the TDG standards on September 13, 2018. We believe that request continues to describe the legal and scientific basis for a short-term modification of the TDG standards at the lower Snake and lower Columbia River dams for the "spring spill season" (from approximately April 1 through June 20) beginning in 2019 and continuing through spring 2021, and we again refer you to it. Likewise, many of the organizations submitting these comments have submitted scoping and other comments (including separate comments on the DEIS) and we also refer you to those.

As explained in the above referenced letter of September 13, 2018, there is compelling evidence and a sound legal basis for Ecology to immediately eliminate, on a short-term basis, the current 115% forebay TDG limit at each dam and replace the existing 120% tailrace TDG limit with a limit of 125% for up to at least 16 hours per day or more starting in 2019. Indeed, this is one of the alternatives presented in the DEIS, although it is not identified as the proposed or preferred action. We urge you to reconsider and adopt this single-step alternative as the action Ecology will take.

We recognize that the DEIS already proposes to eliminate the 115% forebay TDG standard on a short-term basis through 2021 and we support this step. For this reason, in the balance of these comments we focus on issues related to adjusting the tailrace TDG standard to 125% starting in 2019.

NORTHWEST OFFICE 705 SECOND AVENUE, SUITE 203 SEATTLE, WA 98104

T: 206.343.7340 F: 206.343.1526 NWOFFICE@EARTHJUSTICE.ORG WWW.EARTHJUSTICE.ORG

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 a short-term modification of the TDG standards to allow TDG up to 125% in the dam tailraces on a flexible basis starting in 2019 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 on the DEIS in support of this conclusion.

DEIS at 1-2: The executive summary describes the recent Spill Agreement as one reason Ecology is considering a short-term modification of the TDG standards. That 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 short-term modification that would allow flexible spill to a 125% tailrace TDG standard starting in 2019, nor would such a modification conflict with the Spill Agreement. Implementation of the Agreement and a single step, short-term modification of the Washington TDG standard to allow spill to a tailrace only 125% TDG standard are entirely consistent. There is no need for a second, separate process as the DEIS suggests (DEIS at 2). The DEIS already describes information relevant to adopting a 125% tailrace standard and such a modification is one of the alternatives considered in the DEIS. The DEIS thus already provides a basis for Ecology to take this action and another short-term modification process could be seen as duplicative and financially not warranted.

DEIS at 4: The DEIS describes as one basis for the proposed short-term modification of the TDG standards analyses by the Comparative Survival Study (CSS). These analyses do indeed strongly support the proposed change in the TDG standard, including an immediate change to a 125% tailrace standard (and of course elimination of the 115% forebay standard). The description of the CSS study in the DEIS, however, understates the level of support the CSS analyses provide for a short-term modification to a 125% tailrace 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 and in lower water years. While the CSS analysis does not attempt to quantify these survival benefits, they do exist as the analyses recognize, and they may be significant. Second, the DEIS 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 long-standing discussion of over the precise amount of "delayed mortality" that occurs. Finally, the DEIS fails to acknowledge clearly 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 frequent periods of involuntary spring spill). This empirical evidence includes results measured against well-established "action levels" for gas bubble trauma (GBT). This empirical evidence on GBT indicates that spill to 125% TDG is safe for juvenile salmon. Ecology should revise its description of the CSS analyses to more accurately address these and other aspects of the study and more clearly acknowledge the very strong support the study provides for a 125% tailrace TDG standard.

DEIS at 5: The DEIS notes that dam and salmon managers have not previously provided voluntary spill to even 120% TDG (more recently because of Washington's current 115% forebay standard) and implies that this is because of increased symptoms of GBT at spill above existing levels. This statement again appears to misunderstand the existing evidence regarding spill, TDG and GBT. First, there is extensive evidence of the effects of spill and the incidence of GBT at TDG levels well above 120% and 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%. Ecology should rephrase its statement to more accurately reflect the existing evidence about TDG levels and GBT.

DEIS at 8: The Introduction to the DEIS is potentially inaccurate and could be viewed as misleading. First, in describing the cause of salmon declines that have led to ESA listings for most Columbia and all remaining Snake River stocks, the DEIS only appears to acknowledge the harmful effects of the Snake a Columbia river dams on upstream access to upriver habitats without clearly explaining the lethal impacts of the dams and associated reservoirs on all aspects of the salmon life cycle. Nowhere does the DEIS acknowledge the high levels of juvenile mortality at and between the dams from injury, increased disease risk, and other factors. A 2007 analysis in which Washington participated concluded that, for Snake River salmon, some 70% of the human-caused mortality is associated with the dams. Likewise, the introduction overstates in an inaccurate way the potential costs to power production of increased spill. In fact, the modest increases in spill proposed under the Spill Agreement are specifically designed to be revenue neutral as compared to spill in 2017. And spill levels in 2017 were set by a court order. It is not clear why the DEIS would characterize measures necessary to comply with the law as "costing" hundreds of millions of dollars when complying with the law is not optional.

DEIS at 16-17: The DEIS' description of the "Existing Spill Conditions" fails to acknowledge the extensive periods of involuntary spring spill during most years when TDG levels can rise to well above 130%. This leaves the misimpression that the only spill levels about

which we have available data are from periods of voluntary spill which has been capped by the existing 115% and 120% TDG standards in Washington, with the potential implication that the effects of spill above these levels are unknown and dangerous. It is not clear why the DEIS takes this approach or why the description of biological opinions from 2008 to 2014 fails to mention that each of them was ruled illegal by the courts. This description should be revised to be more complete and accurate.

DEIS at 17: The DEIS correctly notes in a phrase that Snake River salmon returns "more recently have declined." The DEIS does not describe the extent of this decline or explain that predicted returns for 2019 are some of the poorest in years. To the extent the DEIS addresses the pattern of salmon returns, it should be more thorough and indicate more clearly, and with appropriate detail, the extent of the current downward trend.

DEIS at 19-20: The DEIS describes both hydrostatic depth compensation and differences between field and laboratory studies generally but provides little analysis here or elsewhere as to how these factors have been taken into account. One consequence is that later in the DEIS, laboratory studies with extended exposures and no depth compensation are given equal billing with more relevant field studies and none of these are evaluated in light of the empirical evidence about the effects of spill and TDG levels up to 125% on salmonids or other aquatic life, leaving the potentially misleading impression that there is considerably more uncertainty about the benefits and risks of spill to this level than the data warrants.

DEIS at 21: The DEIS states 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 statement about the CSS model that may reflect a misunderstanding of it also appear in other places in the DEIS, e.g., at page 22 (indicating that the CSS model considers reducing powerhouse encounters critical to reducing delayed mortality, a specific cause and effect assumption imputed to the CSS analysis that also may not be warranted).

DEIS at 22-25: The DEIS describes a number of studies of the effects of TDG on early salmonid development and on juveniles. The relevance of the early stage studies described in the DEIS is not apparent. Ecology may want to explain exactly where early stage salmonids are likely to encounter elevated TDG levels of either 120% or 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. One of the more relevant studies, described on page 25, 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 then further addressed. Another study 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 the short-term modification under consideration.

DEIS at 27-28: The DEIS describes a number of laboratory studies on these pages, many reporting high incidences of GBT but fails 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. For example, many of the 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% (or 120%) in laboratory conditions is likely to occur during actual voluntary spill operations. Ecology should explain in more detail the relationship and relevance of these studies to river conditions and the flexible spill regime contemplated by the Spill Agreement.

DEIS at 28-29: The DEIS describes a number of studies on the effects of elevated TDG levels on smallmouth bass and other resident fish, including northern pike minnow. Perhaps 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. Even if this is the case, 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. Ecology should acknowledge this differential ability and explain why the DEIS focuses on these non-salmonid species. 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 the species mentioned in the DEIS 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. As it stands, the DEIS appears to treat risks to salmonids and to resident fish that are predators of salmonids as of equal concern. If that actually is the case, Ecology should say so and explain why and explain why the State has supported measures to limit predation on salmonids by a number of other species, including through lethal means, but is here apparently concerned about effects on other predators.

DEIS at 32-33: The DEIS' discussion of aquatic invertebrate notes that in a 1994 field study in the Columbia and Snake, "GBT signs in invertebrate species were rare" even though TDG levels "exceeded 130% on occasion." Another study below Bonneville dam reported "minimal effects." It then goes on to report the results of a number of other studies, most if not

all laboratory studies. The DEIS does not describe the spatial distribution of aquatic invertebrates or 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 the limits considered in the short-term modification. This context is important and should be addressed in describing the relevance of the laboratory studies of invertebrates if possible.

DEIS at 34-35: The discussion of a number of studies on depth distribution is another example of the broader DEIS tendency to report study results without discussing their relevance to the short-term modification. The first two studies appear to provide strong evidence that juvenile salmon generally migrate at depths that will readily mitigate for TDG levels up to 125% by providing TDG equivalent level at or below 115%. The DEIS then describes cage study of rainbow trout exposed to very high levels of TDG (140% or more) for 4 days but explain why this study is relevant to consideration of the proposed short term modification to 125% TDG. It then describes a study by Collis regarding differential migration behavior between hatchery and wild juvenile salmonids but it not clear that this study attributed the behaviors that lead to greater risks of bird predation for hatchery fish to TDG exposure. If Ecology believe that cause and effect relationship exists, it should describe the supporting evidence. Reporting on a mix of what appear to be relevant and irrelevant studies without distinguishing among them may not be very helpful to an eventual decision.

DEIS at 40: While the DEIS reports on a number of studies on the effects of repeated exposures to higher levels of TDG and recovery from GBT, there is little information to relate these results of these studies to conditions juvenile salmon will experience during their downstream migration. If this contextual information is not available, it would seem to limit the relevance of the summarized studies. And in the absence of information to provide context, the empirical results from the CSS analyses would again appear to be the best and most relevant currently available scientific information as these analyses capture the actual experience and consequent mortalities of downstream migrating juveniles over many years at highly variable levels of spill and TDG.

DEIS at 45: The DEIS discussion of uncertainty describes a number of what Ecology apparently considers relevant area of uncertainty regarding the effects of allowing voluntary spill at levels of to 125% TDG on a flexible basis. 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 and what the extent of information relevant to the decision at hand available now. The discussion of uncertainty does not address these questions or describe the extent to which the CSS analyses (and other available information) indicate that the relevant uncertainties are not that material to the decision at hand. For example, stating that "further research may be necessary" to determine whether current levels of TDG are having an adverse impact on mainstem salmonid spawning is a somewhat curious uncertainty to identify in the absence of any discussion of where such spawning occurs and how and why a short-term modification of tailrace TDG limits would affect TDG levels in these areas. As noted above, one

of the most significant such area is chum spawning below Bonneville dam where mitigation for potential TDG impacts is already in place.

DEIS at 44-45: The DEIS reports 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 will lead to a miniscule reduction in power house encounters (and hence presumable a miniscule improvement in survival) as compare to 2018 spill and TDG levels. At the same time the DEIS reports that eliminating the forebay standard and allowing tailrace TDG up to 125% on a flexible basis will reduce powerhouse encounters by about 20%, at larger change that should lead to correspondingly larger survival improvements. Ecology does not explain why it has chosen to make an initial short-term modification with almost undetectable positive effects when the available information indicates that a single-step modification to allow spill to a 125% tailrace TDG standard would provide better protection for downstream migrating juveniles.

DEIS at 45: The DEIS discussion of the potential negative effects of a short-term 120% tailrace TDG standard for 2019 appears to be "grasping at straws," e.g. increased duration of exposure to TDG levels of 120% "may result in an increased risk of GBT to aquatic life" in the absence of depth compensation. The DEIS fails to describe the relevant evidence that indicates this is a meaningful and present risk as opposed to a minor and hypothetical one.

DEIS at 45-48: The DEIS discussion of a short-term modification to allow tailrace TDG levels up to 125% on a flexible basis with no forebay limit explains the potentially significant benefits of this change to juvenile salmon survival (at 45) without explaining the difference between these benefits and the much more minor benefits of a 120% standard (stating only that these benefits would be "smaller"). This lack of clarity potentially obscures the choice between the two alternatives. As with the discussion of a 120% TDG standard, the DEIS also identifies hypothetical, minor, or even non-existent (because mitigated) risks to aquatic life and salmonids (e.g., noting the possibility of TDG impacts to chum salmon below Bonneville but also noting existing mitigation for this risk without any indication that this mitigation is not effective). Similarly, the DEIS reports on elevated levels of GBT but at TDG levels of 120% to 135% without distinguishing among the incidence of GBT above 120% but below 125%. That information is available through data collected and analyzed by the Fish Passage Center but it is not reported in the DEIS. Including this information would be helpful to an eventual decision.

Overall, the DEIS collects and reports on quite a bit of information but appears to make only minimal effort to distinguish between more and less relevant information. The DEIS also appears to misunderstand the most relevant information – the CSS analyses – in potentially important ways. We urge Ecology to address these issues and clarify that there is strong evidence to support an immediate short-term modification of the TDG standards to allow tailrace TDG levels of up to 125% on a flexible basis and little or no relevant evidence to indicate that this change would pose a risk to salmonids or other species of concern.

CONCLUSION

Voluntarily spilling water over the dams on the Snake and Columbia rivers during the spring juvenile migration season 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 of 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 you to adopt a short-term modification of water quality standards to eliminate the forebay TDG limit and allow TDG levels up to 125% of saturation in the tail race of each of the eight dams on the lower Snake and lower Columbia Rivers during the spring juvenile salmon migration season beginning in 2019 and continuing through at least 2021.

Thank you for your consideration of these comments.

Sincerely,

Todd D. True

cc: Joseph Bogaard, Executive Director
Save Our Wild Salmon Coalition
Seattle, WA

Jesse Piedfort, Executive Director
Sierra Club, Washington State Chapter
Seattle, WA

Glen Spain, Northwest Regional Director
Pacific Coast Federation of Fishermen's Associations
Eugene, OR

Kevin Lewis, Executive Director
Idaho Rivers United
Boise, ID

Tom France, Regional Executive Director
National Wildlife Federation
Missoula, MT

Grant Putman, President
Northwest Guides and Anglers Association
Tillamook, OR

Liz Hamilton, Executive Director
Northwest Sportfishing Industry Association
Oregon City, OR

Brett VandenHuevel
Columbia Riverkeeper
Hood River, OR

Colleen Weiler, Jessica Rekos Fellow
Whale and Dolphin Conservation
Newport, Oregon

Wendy McDermott
Director, Rivers of Puget Sound and Columbia Basin
Bellingham, WA 98227