

*American Rivers ♦ Center for Environmental Law and Policy
Columbia Riverkeeper ♦ Institute for Fisheries Resources
National Wildlife Federation ♦ Natural Resources Defense Council
Northwest Sportfishing Industry Association
Pacific Coast Federation of Fishermen's Associations
Save Our wild Salmon Coalition ♦ Sierra Club*

December 7, 2018

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

Re: Scoping Notice for Short-term Modification of Total Dissolved Gas Standards for Federal Dams on the Lower Snake and Lower Columbia Rivers (Nov. 16, 2018)

Dear Director Bellon and Program Manager Bartlett:

The undersigned organizations submit these scoping comments in response to your Department's scoping notice of November 16, 2018 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. A copy of that request is attached to these scoping comments and incorporated into these comment by this reference. We believe this letter describes 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 2020 and 2021.

As explained in that letter, your Department should 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. We urge you to include such an alternative in the forthcoming environmental impact statement pursuant to the above referenced scoping notice. 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 chose to evaluate, you will conclude that a short-term modification of the TDG standards to 125% 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.

As you acknowledge in your scoping notice, such a short-term modification is consistent with requests from the Washington Department of Wildlife, the Columbia River Inter-Tribal Fish Commission and recommendations from the Governor's Southern Resident Killer Whale Task Force. It could also easily be coordinated with a parallel modification of TDG standards by the State of Oregon that affect the federal dams on the lower Columbia River. Oregon's standards currently already allow TDG up to 120% as measured in the tailrace of the lower Columbia River dams on a 24-hour basis (the only dams directly affected by Oregon's standards). We understand

that Oregon is in the process of considering increasing this tailrace TDG level to 125% on a flexible basis. Even if Oregon does not complete this change in time for the 2019 spring spill season, we expect it will complete such a change in time for the 2020 and 2021 spring spill seasons. In any event, a change in the TDG standards in Washington to allow spill up to 125% starting in 2019 on a flexible basis would still benefit juvenile salmonid survival and protect designated uses.

Basis for Considering a Short-term Modification of Water Quality Standards to Allow TDG Levels of Up to 125% on a Flexible Basis During the Spring Juvenile Salmon Migration Season Beginning in 2019 Through 2021.

We briefly summarize below our basis for asking you to develop and consider an alternative that would eliminate the current forebay TDG standard and allow TDG levels of up to 125% on a flexible basis below.

First, recent analyses by the Fish Passage center (FPC) confirm that voluntary spring spill at TDG levels of 125% in the tailrace of each dam is safe for downstream migrating juvenile salmon and steelhead and will further improve juvenile survival – and ultimately adult return rates – as compared to the lower levels of spill allowed under the current TDG exemptions. The most recent such analysis is set out in the FPC’s Comparative Survival Study (CSS) 2017 Annual Report, especially in Chapter 2, “Life Cycle Modeling Evaluation of Alternative Spill and Breach Scenarios” and Chapter 3, “Effects of the In-River Environment on Juvenile Travel Time, Instantaneous Mortality Rates and Survival.” As explained in this report, the CSS analysis is based on extensive data collected over many years and life cycle modeling that has been developed and reviewed by experts within the region since at least 2013. Rather than fully summarizing the technical details of this analysis here, we refer you to the CSS 2017 Annual Report which is available at: http://www.fpc.org/documents/CSS/CSS_2017_Final_ver1-1.pdf, and http://www.fpc.org/documents/CSS/CSS_2013_Workshop_Report_-_FINAL_w_presentations.pdf (containing detailed smolt-to-adult returns at various spill levels, flows and ocean conditions). As that analysis explains, allowing TDG of up to 125% in the tailrace of each dam would lead to a significant increase in smolt-to-adult return rates for Snake River spring/summer Chinook.¹ In addition, the 2017 CSS analysis concludes that TDG levels well above 125% are only a weak or non-factor in instantaneous mortality rates. Together, these conclusions are (a) more robust than similar conclusions Ecology has previously reviewed in connection with requests to modify its TDG standards; (b) have been reviewed by the Independent Scientific Advisory Board with suggestions for additional steps to strengthen the conclusions but without any fundamental disagreement with the CSS findings; and, (c) confirm that a short-term modification of Ecology’s current TDG water quality standards for the lower Snake and lower Columbia River dams is scientifically well supported.

We would also refer you to the draft 2018 CSS Annual report for additional information. It is available at <http://www.fpc.org/documents/CSS/DRAFT2018CSSReportv1-1.pdf>. We would encourage you and your staff to schedule an in-person meeting with staff from the FPC to discuss any questions you may have about their analysis. After you review all of this evidence, we believe you will conclude that the spill volumes allowed by TDG levels up to 125 percent would provide the best and safest route of passage for juvenile and adult salmon and steelhead by allowing them to avoid higher turbine and screen bypass mortalities, reducing passage delay, and dispersing predators. Even though excessive spill *can* cause excessive TDG levels, which can in turn harm fish and other aquatic life, we believe state and federal laws require Ecology to set TDG limits that maximize

¹ See CSS 2017 Annual Report at 50 (Figure 2.10).

salmon survival by balancing the benefits of increased voluntary spring spill with the minimal or non-existent risks of harm from Gas Bubble Trauma (“GBT”) to salmonids and other species.

Moreover, we are not aware of any scientific study in the last ten years or any anecdotal evidence that any non-salmonid aquatic biota in the Snake or Columbia Rivers have suffered harm from TDG levels above 125% even though these levels of TDG occur frequently in the lower Snake and lower Columbia rivers in the spring due to involuntary spill. This absence of evidence of harm suggests risks to any non-salmonid biota if TDG levels up to 125% is minimal or non-existent. In the absence of compelling new field evidence that the risks of higher levels of TDG, including 125 percent of saturation, are harmful to non-salmonid aquatic biota, the more robust evidence of the benefits to salmonids of increased spill as a result of a short-term modification of Ecology’s TDG standards to 125 percent in the tailrace of each dam should lead Ecology to develop and choose an alternative in its SEPA process that approves a short-term modification of water quality standards to allow TDG up to 125% of saturation on a flexible basis during the spring salmon migrations season starting in 2019.

Of course, salmon are not the only anadromous species migrating through the hydrosystem. Pacific lamprey (*Lampetra tridentata*), for example, may also benefit from the short-term modification of the forebay and 120 percent tailrace TDG standards, a benefit to aquatic biota that Ecology may not have previously fully considered. Pacific lamprey have shown widespread decline since the 1960s in the Columbia River system due to habitat loss, water pollution, ocean conditions, and problems with dam passage.² Lamprey decline is of particular concern in the Northwest because of their importance to Native Americans’ cultural heritage and tribal fisheries.³ In fact, the lamprey’s situation is perilous enough that the Oregon Natural Resources Council petitioned the USFWS to list the species under the Endangered Species Act in 2002. Although the USFWS denied the petition, claiming a lack of information, the USFWS has continued to voice concern over the status and distribution of Pacific lamprey.

We recognize that little information is available about precise juvenile lamprey survival benefits from increasing spill levels. However, it is highly likely that juvenile lamprey will benefit indirectly from increased spill. Juvenile lamprey are frequently impinged, and are injured or die, on the turbine intake screens meant to divert juvenile salmon into the bypass system; one study estimated a juvenile lamprey mortality rate of as high as 25 percent at dams with extended-length turbine intake screens.⁴ When spill is reduced, more juvenile lamprey are forced through the screened bypass routes.⁵ Indeed, the FPC has highlighted that reducing spill during spring lamprey migration:

² Close, D.A., M. Fitzpatrick, H. Li, B. Parker, D. Hatch & G. James. 1995. Status report of the Pacific lamprey (*Lampetra tridentata*) in the Columbia River Basin.

³ *Id.*; see also Nez Perce, Umatilla, Yakama and Warm Springs Tribes. 2008. Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin. Formal Draft, p. 4.

⁴ CRITFC, Pacific Lamprey Passage Design, Project No. 2008-524-00. FY 2008-2009 F&W Program Accords (MOA) Proposal Review. pp. 10 – 11; see also BioAnalysts, Inc. 2000. A Status of Pacific Lamprey in the Mid-Columbia Region. Rocky Reach Hydroelectric Project. FERC Project No. 214, pp. 26–27.

⁵ Fish Passage Center, “Review of the NOAA Transportation analyses and potential effects of reducing spill for fish passage in May and beginning the transportation program earlier in the

will be detrimental to lamprey, since elimination of spill will result in additional juvenile lamprey passage through screened power house bypass systems (Starke and Dalen 1995,1998; Moursand et al., 2000, 2001, 2002, 2003; Bleich and Moursand, 2006). Impingement of juvenile lamprey on turbine intake screens is a serious regional problem.⁶

We would encourage you to consult with the FPC and with the Nez Perce and other Tribes about the benefits of increased spill for lamprey as you develop your EIS for a short-term modification of the TDG standards.

As reflected in the recommendations of Governor Inslee's Orca Task Force, the increased spill allowed by a short-term modification of TDG standards to allow TDG up to 125% on a flexible basis would also provide immediate benefits for endangered Southern Resident Killer Whales. These whales rely on adult chinook salmon from the Columbia and Snake Rivers as an important prey resources at certain times of the year and these whales are nutritionally stressed. Whale scientists believe that increasing prey availability for these whales is crucial to halting and reversing their decline. Attached to this letter is a letter from a number of leading orca scientists addressing the importance of increased spill to orca survival. As they explain, allowing higher levels of TDG, and in turn higher levels of voluntary spring spill, will lead to higher juvenile survival and increased adult chinook return to the Columbia, especially spring/summer chinook, a priority prey resource for the whales.

A Short-Term Modification of Water Quality Standards to Allow TDG Levels of Up to 125% on a Flexible Basis is Consistent With and Supported by Washington law.

A short-term modification of WAC 173-201A-200(1)(f)(ii) to allow TDG levels of up to 125% is consistent with the requirements of the regulations that allow such a modification. First, the modification is short-term. It is for a period of approximately 120 days each year for the next three years at each of the eight lower Snake and lower Columbia river dams. The actual periods of higher and lower TDG (and spill) pursuant to the short-term modification at each dam would depend on the details of the annual Spring Fish Operation Plan (FOP) for these dams developed and adopted in collaboration with the State of Washington and other sovereigns by the relevant federal agencies each year. The short-term modification would provide the flexibility for longer periods of spill to the higher 125 percent TDG level and other, shorter, periods of lower spill, likely during peak electricity demand hours. In addition, and in accordance with WAC 173-201A- 410(2), the duration of the short-term modification would only be for the spring juvenile salmon migration season, which may run from about March 1 to about June 30 each year depending on the details of the Spring FOP, and the modification would only be in place for three years or until Ecology adopts any permanent modification of the requirements of WAC 173- 201A-200(1)(f)(ii), whichever occurs sooner.

Second, a modification of the TDG standards to allow spill up to 125% is necessary to accommodate the essential activity of securing beneficial dam passage conditions for migrating juvenile salmon and steelhead in the spring while also allowing appropriate hydropower generation. Most of the salmonids that pass the dams and would be affected by the short-term modification have been listed as threatened or endangered under the Endangered Species Act for many years. As

spring and supporting analyses". Feb. 9, 2010. pp. 2, 10–12. Available online at: <http://www.fpc.org/documents/memos/15-10.pdf>.

⁶ *Id.* at 10.

described above, increasingly robust scientific evidence indicates that increased spill, up to at least 125% TDG, increases salmonid survival. For this reason, a short-term modification also is in the public interest.

Third, a short-term modification to allow TDG levels up to 125% is conditioned to minimize or eliminate any degradation of water quality, existing uses, and designated uses in the affected waters. The modification would only apply during the spring juvenile salmonid migration season. During this time, TDG levels in the tailrace of each dam are often 125 percent or higher anyway, because of involuntary spill resulting from high spring runoff and low electricity demand. We are not aware of any field evidence that these annually occurring high levels of TDG—which vary from year-to-year depending on weather, snowpack and other factors—have significantly harmed water quality or existing or designated uses. Accordingly, due to the frequent unavoidable exceedances of the current TDG standards, the short-term modification we seek would likely affect dam operations and TDG levels for a considerably shorter time than indicated by the terms of the proposed modification.

Fourth, a short-term modification to allow TDG levels up to 125% in the dam tailraces would not reduce or remove the Corps' responsibility to otherwise comply with Washington's water quality standards at all times not subject to the short-term modification or alter the Corps' obligations and responsibilities under other federal, state, or local rules and regulations. In fact, such a short-term modification may help facilitate dam operations over the next few years under a biological opinion developed pursuant to the federal Endangered Species Act in order to avoid jeopardy to species of salmon and steelhead that are protected by that Act.

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 percent 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 develop and carefully consider in your EIS a short-term modification of water quality standards to 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 scoping comments. Please contact Joseph Bogaard (joseph@wildsalmon.org / 206-300-1003) if you have any questions.

Sincerely,

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