Oregon
Tina Kotek, Governor

Department of Fish and Wildlife
Ocean Salmon Columbia River Program
17330 SE Evelyn St
Clackamas, OR 97015
Phone: 971-673-6033
www.dfw.state.or.us

Attn: David Gruen
Oregon Department of Environmental Quality
11th Floor 700 NE Multnomah St, Ste 600,
Portland, OR, 97232

The Oregon Department of Fish and Wildlife (ODFW) appreciates the Environmental Quality Commission's (EQC) efforts to modify Oregon Administrative Rule (OAR) 340-041-0031 for five years to allow the U.S. Army Corps of Engineers (Corps) to operate the – Bonneville, The Dalles, John Day, and McNary dams– on the lower Columbia River consistent with spill operations for fish passage as outlined in Appendix B of the U.S. Government Commitments in support of the Columbia Basin Restoration Initiative of the Resilient Columbia Basin Agreement (RCBA). ODFW recognizes the dedication and effort that has been put into providing reasonable levels of risk while remaining consistent with the intent of federal and state laws. It has been our pleasure to provide fish and wildlife expertise throughout the regionally collaborative processes that began around the enactment of the Clean Water Act and Endangered Species Act in the early seventies and as it has evolved over the last couple decades to identify reasonable levels of risk for a multitude of purposes. The Oregon Department of Environmental Quality's (ODEQ) continued commitment to considering workable levels of risk management within the context of current water quality rules and regulations is greatly appreciated.

Consistent with our mission to protect and enhance fish and wildlife and their habitats, ODFW staff carefully reviewed the draft modification language and identified a few recommendations we feel will improve the document. The first is the date range of the proposed order, the second concerns the automatic trigger in Section 6.b), and the third concerns the ambiguity with calculating Total Dissolved Gas (TDG) outside of the normal spill season (September 1 through March 31). We hope that after providing more detail on these important issues you may be able to address them in the final order.

The modified total dissolve gas standards, as identified within Section 5 of the proposed Order, will apply for five years, 2025, 2026, 2027, 2028, and 2029, and Section 1 identifies the start date for those years to be April 1. However, the RCBA is already in place and operations associated with Appendix B are currently ongoing. As things currently stand, any spill operations that occur between now and April 1, 2025, are bound by the 110% limit set by OAR 340-041-0031. It would be desirable for the next modification to run on a calendar year rather than a Columbia spill year, begin January 1, 2025, and have any operations that might occur between January 1 and March 31, 2025, be covered by the new modification.

ODFW is concerned with how spill is automatically reduced per Section 6.b)i. of the draft Order. The 15% general Gas Bubble Trauma (GBT) action criterion and the 5% severe GBT action criterion were developed based on lab studies on salmon where substantial mortality did not occur until 60% (standard) and 30% (severe) of the exposed fish exhibited signs of mortality. The 15% and 5% action levels provide both criteria a large margin of safety (FPC 2007). It was also assumed that this level of GBT would follow a pattern, and that when observed in salmon and steelhead, would consequently provide protections for other species that occupy aquatic habitats in the downstream areas.

ODFW is also concerned with how the generic term 'non-salmonids' in Section 6.b)i. of the draft Order has the potential to trigger the automatic spill reductions outlined in Section 6.b) irrespective of the fish or the situation. Oregon waters, including the lower Columbia River, support both native and non-native

Department of Fish and Wildlife
Ocean Salmon Columbia River Program
17330 SE Evelyn St
Clackamas, OR 97015
Phone: 971-673-6033
www.dfw.state.or.us

resident non-salmonid fish and other aquatic life. Many non-native fish species are known piscine predators and/or competitors with Oregon's native cold-water fish including Endangered Species Act (ESA)-listed juvenile salmon and steelhead.

Non-native piscine predators have been shown to consume or compete with salmon and steelhead as well as Pacific Lamprey, a State of Oregon species of concern (e.g., Poe et al. 1991, Boersma et al. 2006, Sanderson et al. 2009, Tiffan et al. 2020, Waltz et al. 2023, Bingham et al. 2024). These predators include but are not limited to: Smallmouth bass (Tiffan et al. 2020, Waltz et al. 2023), Walleye (Waltz et al. 2023), Yellow perch (Moyle 2002), and catfish (e.g., Poe at al. 1991, Arakawa and Lampman 2020). Non-native piscine predation to ESA listed salmon and steelhead, as well as Pacific lamprey, are identified in federal and state recovery plans as contributing to declines and limiting the recovery these species as follows:

- Snake River Fall Chinook Salmon are Threatened and juveniles must out-migrate through the lower Columbia River dams and associated reservoirs. The NOAA ESA Recovery Plan for Snake River Fall Chinook Salmon lists non-native piscine predation as a limitation to recovery and recommends further action to suppress a suite of non-native piscine predators including Smallmouth Bass and Walleye (NOAA 2017a).
- Snake River Spring/Summer Chinook and Snake River Basin Steelhead are Threatened and juveniles of these species must out-migrate through the lower Columbia River dams and associated reservoirs. Non-native piscine predation is discussed as a limiting factor to recovery and the ESA Recovery Plan calls for 'initiation of measures to reduce losses due to fish predators' (NOAA 2017b).
- Snake River Sockeye are Endangered and juveniles of this species must out-migrate through the lower Columbia River dams and associated reservoirs. The ESA recovery plan discusses non-native piscine predation as a contributing factor to Sockeye salmon population declines and an impediment to recovery. The ESA recovery plan calls for actions to reduce introduced species that prey on Sockeye salmon (NOAA 2015).
- Upper Columbia Spring Chinook Salmon (Endangered) and Steelhead (Threatened) are both ESA listed and must out-migrate through the lower Columbia River dams and associated reservoirs. Similarly to Snake River Fall Chinook Salmon, non-native piscine predation was listed as a limitation to recovery of these species in the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan (NOAA 2007).
- Mid-Columbia Steelhead (Threatened) recovery is limited partially due to non-native piscine predation, including from Yellow Perch (NOAA 2009, ODFW 2010). Furthermore, ESA listed species in the middle Columbia River may also see negative impacts from non-native species like Smallmouth bass and Walleye if they spread into important breeding and rearing habitats, which could happen as climate change improves tributary habitat for non-native predators or due to other intra- and interspecific processes (Rubenson and Olden 2020). An expansion of non-native piscine predators could lead to additional predatory impacts as well as potential competitive impacts that are not predatory (Van Zuiden et al. 2016, Ramberg-Pihl et al. 2023). Because of this, efforts to reduce non-native predators in the middle Columbia River (e.g., lower Columbia River dams and associated reservoirs) could help limit the impact of non-native predators beyond the reservoir habitat found in the mainstem Columbia.

Oregon
Tina Kotek, Governor

Department of Fish and Wildlife
Ocean Salmon Columbia River Program
17330 SE Evelyn St
Clackamas, OR 97015
Phone: 971-673-6033
www.dfw.state.or.us

- Pacific Lamprey have been listed as an Oregon State Sensitive Species since 1996 with non-native piscine predators highlighted as one factor leading to a decline of Pacific Lamprey (ODFW 2020). Non-native piscine predation had been identified as a secondary limiting factor to recovery in the mid-Columbia River and the impacts are unknown for Pacific lamprey in the upper Columbia and Snake Rivers. The State of Oregon Lamprey Recovery Plan recommends ongoing efforts to reduce predation on lamprey from non-native piscine predators, despite the numerous unknowns about the likelihood of success (ODFW 2020).

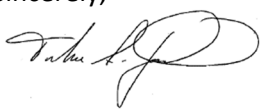
Given these facts and concerns, ODFW recommends that the draft Order be modified in Section 6.b) to remove the automatic trigger and say, "Spill at a dam **may** be reduced to 120 percent as calculated in 7.a)i." with the discretion to make the decision being left with the ODEQ Director. This could avoid the potential for the Corps to interpret this TDG modification as requiring them to restrict spill operations that are beneficial to native salmon and steelhead (as detailed in the RCBA) to:

- protect non-native fish and other aquatic life from harm, even if they are the same non-native piscine predator fish that are predating upon and competing with the ESA-listed juvenile salmon and steelhead we are striving to benefit through this modification action; or
- restrict beneficial spill for an extended period of time even if the exceedance was only slightly over one or the other action criteria or if it dropped back below the action criteria in an expedited fashion.

Our final concern involves the ambiguity of calculating TDG outside of the spring and summer spill seasons. Is it calculated as determined in OAR 340-041-0031, to be the maximum instantaneous reading in a 24-hour period? Or is it calculated as defined in Section 7.a)i., as the average of the highest 12-hours in a 24-hour period? To avoid confusion, and to ensure operations intended for fish protections are not compromised, ODFW recommends clearly defining that TDG be measured during the period of between September 1 and March 31 also as defined in Section 7.a)i.

ODFW again thanks ODEQ for their work on this important issue and believes with these important clarifications to the order the RCBA and CBRI will be able to function as intended over the full term of the order. Please feel free to reach out if questions arise during the remainder of the EQC process or if additional information is desired.

Sincerely,



Tucker Jones
Oregon Department of Fish and Wildlife
Ocean Salmon Columbia River Program Manager
Office: 971-673-6067
Cell: 971-269-9796
tucker.a.jones@odfw.oregon.gov

(citations available upon request)

FISH PASSAGE CENTER

847 NE 19th Avenue, #250, Portland, OR 97232
Phone: (503) 833-3900 Fax: (503) 232-1259
www.fpc.org/
e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: David Gruen, Oregon DEQ

FROM: Michele DeHart

DATE: October 1, 2024 (Revised October 10, 2024)

SUBJECT: Comments on Proposed Order Approving a Modification to Oregon's Water Quality Standard for Total Dissolved Gas in the Columbia River Mainstem for 2025-2029.

Thank you for the opportunity to review and provide comments on the draft document entitled: Order Approving a Modification to Oregon's Water Quality Standard for Total Dissolved Gas in the Columbia River Mainstem (here in Draft Order). **Overall, we support the continued implementation of a 125% tailrace Total Dissolved Gas (TDG) standard (based on an average of the 12 highest hourly TDG measures in a calendar day) for the April 1-June 15 period and a 120% tailrace TDG standard for the June 16-August 31 period. However, we have concerns with a few aspects of the Draft Order. These concerns are outlined in the following summary comments, followed by more detailed discussions.**

- The Draft Order does not provide a modification to TDG standards to cover the winter or fall spill operations at McNary and John Day dams, as outlined in Appendix B of the December 2023 Stay Agreement (also referred to as the Resilient Columbia Basin Agreement). Without such a modification, winter and fall spill at these projects may be reduced or terminated under the EPA 110% TDG standard. We recommend adding such a modification for winter and fall spill to the Draft Order. We believe this would better accomplish the intent of aligning the Draft Order with the operations specified by the 2023 Stay Agreement and avoid potential in-season confusion or delay.
    - If the new 2025 Order does not include a modification to cover fall and winter spill, then it should at least run through the entire 2029 calendar year. That way, all separate requests for modification of Oregon's TDG standards to cover fall and winter surface spill can be considered under the new Order.

- Over the years, the Fish Passage Center (FPC) has provided a myriad of analyses documenting the biases associated with the current non-salmonid Gas Bubble Trauma (GBT) monitoring program. In addition, the FPC continues to have concern over applying the salmonid GBT action criteria to non-salmonid GBT samples. Despite these analyses and concerns, the Draft Order continues to include automatic triggers to reduce spring spill in the Mid-Columbia River based on non-salmonid GBT incidence rates. We recommend that Section 6.b.i be modified such that reducing spill in the spring, based on non-salmonid GBT incidence levels, is left to the DEQ Director rather than being automatic. This would allow the Director to determine whether a spill reduction is warranted under current conditions.
- There is no automatic management action associated with summer GBT monitoring. Instead, reductions in summer spill are left to the DEQ Director, based on GBT incidence levels. Over the last three years, summer non-salmonid GBT samples from McNary and Bonneville have consisted of inadequate same sizes to draw population-level inferences. Therefore, we caution the DEQ Director from making any decisions to reduce spill based on non-salmonid GBT monitoring in the summer.

2023 Stay Agreement and Winter and Fall Spill Operations

Appendix B of the December 2023 Joint Motion to Stay Litigation through 2028 (2023 Stay Agreement or the Resilient Columbia Basin Agreement) specifies that McNary Dam will provide surface spill in the winter (March 1-April 9) and fall (September 1-November 15) and John Day Dam will provide surface spill for a portion of the winter (March 21-April 9). This spill is intended to benefit the downstream migration of adult steelhead (i.e., kelts and/or steelhead adults that overshot their natal streams) and any early or late-migrating juvenile salmonids.

In Section 1 of the Findings, the Draft Order notes that the U.S. Army Corps of Engineer's (COE) request for a modification to Oregon's TDG standards sought approval in alignment with Appendix B of the 2023 Stay Agreement. However, the Draft Order appears to be a continuation of the 2020 Order and, therefore, does not provide a modification to TDG standards that will cover the winter or fall spill operations that are outlined in the 2023 Stay Agreement.

Without a specific modification to TDG standards in the winter and fall spill period, it is possible that spill at McNary and/or John Day may be reduced or terminated under the EPA 110% TDG standard (i.e., not to exceed 110% for a single hour). Although Section 4 of the Order states that the DEQ Director may approve additional periods of modification up to 120% TDG, this language puts onus on the COE to make a separate request to modify TDG standards for the winter and fall spill operations. At the public Environmental Quality Commission (EQC) meeting on September 27, 2024, DEQ staff characterized the modified language in Section 4 of the Order as streamlining the process for modifications outside the spring and summer spill periods by no longer mandating written approval of such requests from the DEQ director. However, we do not see this as streamlining the process and, instead, see the potential for delayed or reduced implementation of winter and fall spill operations. Section 4 of the Order still states that "The DEQ Directory may approve additional periods of application of this modification…". The word "approve" in this statement implies that some form of approval must

be issued for each request for an additional period of TDG modification, whether it be written or oral. Without this "approval", the requestor may delay implementation of spill operations outside the spring and summer periods or reduce spill if the 110% standard is exceeded.

Rather than making a modification for winter and fall spill subject to a separate request, with the added potential for confusion over the approval process, we recommend adding a separate modification for winter and fall spill directly to the Draft Order. This would not only add clarity to the order but also better accomplish the intent of aligning the Draft Order with the operations specified by Appendix B of the 2023 Stay Agreement.

It is our understanding that a separate request for a modification to Oregon's TDG standards to cover fall surface spill in 2024 could not/would not be granted because the 2020 Order expired after August 31, 2024. Therefore, in 2024, fall surface spill at McNary Dam is currently being managed to the 110% TDG standard, as it is the more stringent of Washington and Oregon standards. This could lead to reductions in fall surface spill in 2024. ***If the new 2025 Order does not include a modification to cover fall and winter spill, then it should at least run through the entire 2029 calendar year. That way, all separate requests for modifications of Oregon's TDG standards to cover fall and winter surface spill in 2025-2029 can be considered under the new Order.***

Non-Salmonid Gas Bubble Trauma Monitoring

Action Criteria for Reducing Spring Spill based on Non-Salmonid GBT Monitoring Data

Over the years, the FPC has provided a myriad of analyses documenting the biases associated with the current non-salmonid GBT monitoring program conducted during the spring spill period. Most recently, the FPC conducted an analysis of non-salmonid GBT data from the first three years of monitoring (2021-2023) and found that, at high TDG levels, there was strong evidence that sampling via electrofishing skews the sample data to include only the species and individuals that have the highest probability of developing signs of GBT (FPC 2024).

Much like our comments to the draft form of the 2020 Order (FPC 2019), the FPC continues to have concerns over the application of the salmonid GBT action criteria to the non-salmonid biological monitoring program. In Section 6.b.i. of the Order, the Draft Order states that voluntary spill in the spring must be reduced if one or both of two biological action criteria are met. These two action criteria are: 1) 15% or more of salmonids or non-salmonids examined show signs of GBT in their non-paired fins or 2) 5% or more of salmonids or non-salmonids show signs of GBT in their non-paired fins where more than 25% of the surface area of the fin is occluded by gas bubbles (herein referred to as severe GBT). These action criteria were developed based on lab studies on salmonids that indicated that significant mortality did not occur until 60% of the exposed population exhibited signs of GBT or 30% exhibited severe signs in their unpaired fins. The action levels were set at 15% with any signs and 5% with severe signs to provide a large margin of safety, primarily because the results from the salmonid lab studies indicated some level of uncertainty between fin bubble percentage and the onset of mortality (FPC 2007). There is a scarcity of data that confirms the assumption that impacts of fin GBT on non-salmonids are the same as salmonids and, therefore, that these criteria should apply to non-salmonids.

Despite the FPC analyses of non-salmonid GBT monitoring data and our concerns over applying the salmonid action criteria to non-salmonid GBT samples, Section 6.b.i. of the Draft Order continues to include an automatic trigger to reduce spill in the Mid-Columbia River based on non-salmonid GBT incidence rates. While this trigger has not been implemented in the Mid-Columbia River to date (based on non-salmonid GBT monitoring), it has been implemented on two occasions in the Lower Snake River. On each occasion, spill throughout much of the Lower Snake River was reduced for one week (FPC 2023a, FPC 2023b). These management decisions, which were made using GBT data on non-listed non-salmonids, negatively affected the survival of ESA listed salmonids.

We recommend modifying the language in Section 6.b.i of the Draft Order such that reducing spill in the spring, based on non-salmonid GBT incidence levels, is left to the DEQ Director rather than automatic. Similar language is already present in Section 7.b. of the Draft Order for reducing summer spill due to GBT incidences. This would allow the DEQ Director to determine whether spill reduction is warranted under current conditions, particularly when spill reductions based on non-listed species would negatively impact ESA listed salmonids.

Summer Non-salmonid GBT Monitoring

In Section 7.d. of the Order, the Draft Order states that application of the tailrace TDG criteria for the summer spill period must be accompanied by a DEQ-approved biological monitoring plan and this plan must include monitoring for non-salmonids. Despite the need for biological monitoring in the summer, there is no automatic management action associated with summer GBT monitoring. Instead, the Draft Order states that the DEQ Director may halt voluntary spill in the summer if results from biological monitoring exceed one of two action criteria (Section 7.b. of the Order).

Over the last three years, non-salmonid GBT monitoring in the summer has been conducted by the SMP personnel at McNary and Bonneville dams. Per DEQ clarification in 2022, non-salmonid GBT monitoring at these SMP site consisted of examining up to 50 total incidentally collected non-salmonids, per sample, for signs of GBT. These incidentally collected non-salmonids were collected during regular salmonid GBT monitoring periods, using the same collection methods and examination protocol as salmonids. DEQ clarification also specified that summer non-salmonid GBT monitoring at McNary and Bonneville would only occur at TDG levels of >110% and water temperatures of ≤68°F.

Over the last three years (2022-2024), SMP personnel at McNary and Bonneville have examined a maximum of 55 total non-salmonids in a single year (Table 1). In addition, only two non-salmonids examined for GBT had signs of fin GBT, both of which occurred in 2022. It is clear from the results from summer non-salmonid GBT monitoring efforts over the last three years that non-salmonid sample sizes will never reach the numbers that are needed to make inferences on population-level GBT incidence rates. ***Therefore, we caution the DEQ Director from making any decisions to reduce spill based on non-salmonid GBT monitoring in the summer.***

Table 1. Total non-salmonids collected and examined for GBT and total number of non-salmonids with signs of fin GBT from summer non-salmonid GBT monitoring conducted by SMP personnel at McNary (MCN) and Bonneville (BON) dams in 2022, 2023, and 2024.

Site	Total Examined			Total with Signs of Fin GBT		
	2022[A]	2023[B]	2024	2022[A]	2023[B]	2024
MCN	1	8	12	0	0	0
BON	54	7	7	2	0	0
Total	**55**	**15**	**19**	**2**	**0**	**0**

[A] Summary of 2022 data are from the 2022 FPC annual GBT Report to the COE (FPC 2022).
[B] Summary of 2023 data are from the 2023 FPC annual GBT Report to the COE (FPC 2023c).

References

Fish Passage Center (FPC). 2007. Questions regarding Gas Bubble Trauma. June 18, 2007 memorandum to Agnes Lut (DEQ). http://www.fpc.org/documents/memos/98-07.pdf.

FPC. 2019. Comments on Proposed Modification to Total Dissolved Gas Water Quality Standard for the Mainstem Columbia River for 2020 and 2021. November 25, 2019 letter to Paula Calvert (DEQ). https://www.fpc.org/documents/memos/47-19.pdf

FPC. 2022. Appendix H – Gas Bubble Trauma Monitoring and Data Reporting for 2022. November 3, 2022 memorandum to Daniel Turner (COE). https://www.fpc.org/documents/memos/56-22.pdf

FPC. 2023a. Summary of reduced spill operations at Snake River FCRPS projects in response to high gas bubble trauma in non-salmonids (May 10-17, 2023). June 8, 2023 memorandum to Michele DeHart. https://www.fpc.org/documents/memos/30-23.pdf

FPC. 2023b. Summary of reduced spill operations at Snake River FCRPS projects in response to high gas bubble trauma in non-salmonids (May 31-June 7, 2023). June 14, 2023 memorandum to Michele DeHart. https://www.fpc.org/documents/memos/31-23.pdf

FPC. 2023c. Appendix H – Gas Bubble Trauma Monitoring and Data Reporting for 2023. November 9, 2023 memorandum to Daniel Turner (COE). https://www.fpc.org/documents/memos/41-23.pdf

FPC. 2024. An analysis of non-salmonid gas bubble trauma (GBT) monitoring (2021-2023). January 11, 2024 memorandum to the Fish Passage Advisory Committee. https://www.fpc.org/documents/memos/03-24.pdf

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

ENVIRONMENT, FISH AND WILDLIFE

October 8, 2024

In reply refer to: E-4

Comment submitted via email: David.Gruen@deq.oregon.gov

Mr. David Gruen
Columbia River Coordinator
Oregon Department of Environmental Quality
700 NE Multnomah St, Ste 600
Portland, OR 97232

Dear Mr. Gruen:

The Bonneville Power Administration (BPA) appreciates the opportunity to provide comments to the Oregon Department of Environmental Quality (DEQ) on the Proposed Modification to the Total Dissolved Gas Standard on the Mainstem Columbia River (draft Order) for the four federal multiple purpose facilities on the lower Columbia River: Bonneville Project, The Dalles Lock and Dam, John Day Project, and McNary Lock and Dam.

BPA markets and transmits the hydropower generated at thirty-one Federal Columbia River Power System (FCRPS) projects, including the four projects listed above.[1] BPA, as part of the U.S. Department of Energy, operates as a not-for-profit federal entity, selling cost-based electrical power and transmission services to benefit the Pacific Northwest, including the public bodies and cooperatives that serve domestic and rural consumers. In providing these services, BPA must balance multiple public duties and purposes, including: assuring the Pacific Northwest has an adequate, efficient, economical, and reliable power supply; promoting energy conservation and the use of renewable resources; and, acting in a manner consistent with the program developed by the Northwest Power and Conservation Council by protecting, mitigating, and enhancing fish and wildlife in the Columbia River basin that are affected by the development and operations of the federal facilities from which Bonneville markets power.[2] The U.S. Army

[1] The Columbia River System (CRS) is a subset of the 31 FCRPS dams and includes 14 projects operated as a coordinated water management system. The 14 CRS projects are comprised of 12 Corps projects and two Bureau of Reclamation ("Reclamation") projects located throughout the Pacific Northwest in the states of Idaho, Oregon, Montana, and Washington. BPA markets and transmits the hydropower generated from these 14 projects. These projects are operated in a coordinated manner for purposes specifically authorized by Congress, including flood risk management, navigation, fish and wildlife conservation, hydropower generation, recreation, irrigation, and municipal and industrial water supply, but the authorized projects vary by project. The four lower Columbia projects are part of the CRS.
[2] 16 U.S.C. § 839. Unlike most federal agencies, Bonneville does not receive annual congressional appropriations; instead, the agency is self-financed from revenues received from the sale of power and transmission services. Bonneville utilizes this revenue to not only pay for the continuing costs associated with its programs (including power, transmission, and fish and wildlife investments and maintenance) but

Corps of Engineers (Corps) operates and maintains these four projects for multiple congressionally authorized purposes including flood risk management, navigation, hydropower generation, fish and wildlife conservation, irrigation, recreation, water quality, and municipal and industrial water supply though not every facility is authorized for every one of these purposes. While the Corps is congressionally authorized to operate these four projects for multiple purposes, Bonneville is the federal agency Congress authorized to market and transmit the power generated at these facilities. In return, BPA is required to pay, either directly to the Corps, or as a reimbursement to the U.S. Treasury, (1) all costs associated with power-specific operations and assets (e.g., turbines); and (2) a share of "joint costs," which benefit or mitigate, for all purposes of the facility (e.g., fish mitigation, water quality). Any additional costs applied to these four projects as a result of the Modification to Oregon's Water Quality Standard for Total Dissolved Gas in the Columbia River Mainstem will increase BPA's costs, which in turn will impact BPA ratepayers throughout the Northwest.

As a signatory of the *U.S. Government (USG) Commitments in Support of the 'Columbia Basin Restoration Initiative' and in Partnership with the Six Sovereigns* (Resilient Columbia Basin Agreement or Agreement), BPA supports modification of Oregon's total dissolved gas (TDG) water quality standard, which would allow the Corps to continue implementation of spill operations for fish passage as outlined in Appendix B (USG commitments) of the Agreement. Additionally, BPA supports the Corps' operations by contracting Pacific States Marine Fisheries Commission (PSMFC) to conduct biological monitoring of juvenile salmonids and U.S. Geological Survey (USGS) to conduct spring, instream, non-salmonid[3] biological monitoring and annual reporting as required by Oregon in the Order Approving a Modification to the Oregon's Water Quality Standard for Total Dissolved Gas in the Columbia River Mainstem (2020 Order) to allow the TDG water quality standard modification for increased fish passage spill. Bonneville also funds Fish Passage Center, which provides management of biological monitoring data and annual reporting of PSMFC monitoring data. Funding of this work originates in ratepayer funds.

Many of our comments concern information gaps that are evident in the draft Order's findings, which are also absent in materials and information presented to the Oregon Environmental Quality Commission (Commission) for September 27, 2024, agenda item I, 2024 Total Dissolved Gas Modification Order for the Mainstem Columbia River.

---

also to repay the United States Treasury for the power share of the original federal investment used to construct the Federal Columbia River Power System. The Bonneville Administrator must operate the agency in a manner that allows it to recover its costs "in accordance with sound business principles." 16 U.S.C. § 839e(a)(1). This includes the objectives of setting the lowest possible rates for Bonneville services, while enabling Bonneville to make timely repayments to the Treasury and simultaneously fulfilling multiple public purposes for the benefit of the Pacific Northwest.

[3] Unless referencing language in OAR or the draft order, Bonneville's comments will use the term "non-salmonid" in reference to resident and non-salmonid species.

Draft Findings 2.b

In addressing Oregon's rule, OAR 340-041-0104(3)(b), "The modified total dissolved gas criteria associated with the increased spill provides a reasonable balance of the risk of impairment due to elevated total dissolved gas to both resident biological communities and other migrating fish and to migrating adult and juvenile salmonids when compared to other options for in-river migration of salmon," draft Findings subsection 2.b provides an overview of factors affecting TDG-related risk and generally reports low levels of GBT observed in resident fish species with no biological threshold exceedances that would have triggered spill reduction. Additionally, a risk-related statement in Findings subsection 2.a reports "no exceedances of the of the biological monitoring of juvenile salmonids." However, the Findings do not provide a description of risk to migrating salmonids due to elevated TDG exposure. Nor do the Findings describe changes in GBT incidence rates, an indicator of risk, due to the increase in the modified TDG criteria from 120%, which was the historical modified TDG criteria for the spring fish passage season prior to 2020, to 125% TDG as modified in the 2020 Order.

BPA Comments on Draft Findings 2.b

BPA requests that the Findings include a summary of observed GBT for juvenile salmonid exposure to 125% TDG consistent with the 2020 Order and include a comparison with exposure to 120% TDG during spring migrations. Findings 2.a of the 2020 Order includes the statement, "Fish Passage Center data estimate an approximate 1 percent incidence of gas bubble trauma in juvenile salmonids in the Columbia River when total dissolved gas levels are managed to 120 percent in the tailrace. This estimate is based on monitoring information collected between 1995 and 2019." Is the cumulative exposure to 125% TDG accompanied by an increase in the GBT incidence rate?

BPA additionally requests that the order include GBT incidence rates as the metric to describe level of risk instead of relying on instances of biological threshold exceedances, which only indicate an unacceptable level of risk.

For the statement, "Studies have shown instances when greater than 15 percent of resident fish examined have signs of gas bubble trauma when exposed to 120-125 percent total dissolved gas," BPA requests that Oregon consider including more recent best available science[4] on gas bubble trauma and consider adding reference to USGS's 2024 report, *Nonsalmonid Gas Bubble*

[4] Examples include: Kusnierz, P.C., K.A. Bouwens, and A.L. Ransom. 2024. Predicting the likelihood of gas bubble trauma in fishes exposed to elevated total dissolved gas in the lower Clark Fork River, Idaho. Transactions of the American Fisheries Society 153:39-54.
McGrath, K.E., E.M. Dawley, and D.R. Geist. 2006. Total dissolved gas effects on fishes of the lower Columbia River. Report to the U.S. Army Corps of Engineers, Portland District, Contract DE-AC05-76RL01830, Portland, Oregon.
Pleizier N.K., D. Algera, S.J. Cooke, and C.J. Brauner. 2020. A meta-analysis of gas bubble trauma in fish. Fish and Fisheries 21:1175–1194.

Trauma Investigations[5], which includes descriptions of two instances on the lower Snake River in 2023 when exceedances of Washington Department of Ecology's 15% GBT threshold resulted in spill reduction. The report also includes a chapter describing the effects of elevated TDG on sculpin and threespine stickleback under controlled laboratory conditions, which should be considered by the Commission in its decision-making and for inclusion in the Findings. USGS concluded that some non-salmonid species, such as sculpin, are more susceptible to the effects of elevated TDG due to such factors as behavioral differences. For example, sculpin may be less likely to seek depth compensation than other species. Exposure to elevated TDG that results in GBT may impact buoyancy regulation, leading to compromised swimming efficiency, resulting in reduced foraging and higher rates of mortality via avian and piscivorous predators.

Annual reports of monitoring non-salmonid species for GBT in the lower Columbia River for 2021, 2022, and 2023 can be referenced at www.cbfish.org; the overall rate of GBT for all non-salmonid species examined each week varied by location (below McNary and Bonneville dams) and environmental conditions, ranging from zero to up to 12.8%.

BPA also suggests correcting "2019 total dissolved gas modification order" to "2020 total dissolved gas modification order," as the order was approved by the Commission on January 24, 2020, and signed by the DEQ Director on behalf of the Commission on February 11, 2020.

Draft Order Section 4

Draft Order section 4 describes the process for approval of additional periods, outside of the traditional spring and summer spill season, when TDG modification is allowed. This section references Order subsection 7.d, which requires a DEQ-approved biological monitoring plan that is applicable to summer spill.

BPA Comments on Draft Order Section 4

If the intention is to require biological monitoring during these additional periods, the monitoring requirement should be explicitly stated instead of only referencing Order subsection 7.d.

Draft Order 6.b.i and 7.b

These subsections address GBT incidence rates based on gas bubbles observed on non-paired fins. However, the Fish Passage Center biological monitoring protocol referenced in Findings subsection 2.b includes gas bubbles observed around the eyes in addition to non-paired fins.

[5] Tiffan, K.F., B.D. Liedtke, and S.L. Benson. 2024. Nonsalmonid Gas Bubble Trauma Investigations. Final Report to the Bonneville Power Administration, Contract 90045, Portland, Oregon. Available at https://www.cbfish.org/Document.mvc/Viewer/P206973

BPA Comments on Draft Order 6.b.i and 7.b

BPA requests that the order be consistent with the Fish Passage Center biological monitoring protocol referenced in Findings subsection 2.b.

The Commission should be aware that USGS's biological monitoring has found GBT in non-salmonid species including sculpin, three-spined stickleback, northern pikeminnow, peamouth and sucker. USGS has also found GBT in non-protocol areas of multiple non-salmonid species.

The order includes the terms "resident" and "non-salmonid" which can be confusing. BPA suggests consistent use of one term where possible.

Conclusion

We look forward to working with you and the Corps to help with implementation of spill operations for juvenile fish passage in the upcoming years. Please contact Paula Calvert, at (503) 230-5651, if you have any questions.

Sincerely,

SCOTT G. ARMENTROUT
Executive Vice President
Environment, Fish and Wildlife
Bonneville Power Administration

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

700 NE Multnomah Street, Suite 1200
Portland, Oregon 97232

(503) 238-0667
www.critfc.org

October 10, 2024

David Gruen
Oregon Department of Environmental Quality
700 NE Multnomah St., Ste 600
Portland, OR 97232

RE: Comments on Proposed Order Approving a Modification to Oregon's Water Quality Standard for Total Dissolved Gas in the Columbia River Mainstem for 2025-20229.

Dear Mr. Gruen,

The Columbia River Inter-Tribal Fish Commission (CRITFC) [1] was created by the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Indian Nation, and the Nez Perce Tribe. These four tribes possess rights reserved by treaties with the United States to take fish destined to pass the tribes' usual and accustomed fishing places. Among these fish are the anadromous species originating in the Columbia River and its tributaries. Protection of these fish as they pass hydroelectric dams, both downstream and upstream, are paramount issues in assuring that the tribes' treaty fisheries resources are fulfilled. These same fish are important cultural beneficial uses that are also protected under the Clean Water Act. Every salmon and steelhead that returns as an adult brings back some of the tribal cultural and trust resource back to the CRITFC member tribes.

CRITFC appreciates this opportunity to comment on the Oregon Department of Environmental Quality's Proposed Total Dissolved Gas Order (Proposed Order). CRITFC concurs and supports most of the general requirements of the proposed order including the order provision which modifies the Corps of Engineers' proposed request to spill water to assist out-migrating smolts that are listed under the Endangered Species Act. This spill program supports and protects listed and non-listed salmon and steelhead and other anadromous fish vital to our member tribes' sustenance and culture, such as Pacific lamprey.[2]

After review by CRITFC staff, there is still strong support for the continued implementation of the 125% tailrace Total Dissolved Gas (TDG) standard (based on an average of the 12 highest hourly TDG measures in a calendar day) for the April 1- June 15 period and a 120% tailrace TDG standard for the June 16-August 31 period. However, staff identified a few issues that need to be addressed to ensure the Proposed Order does not impede implementation of the operations outlined in Appendix B of the

[1] The CRITFC was formed in 1977 per formal resolution of the four tribes' governing bodies. The Commission is comprised of elected and appointed tribal officials who are members of the respective tribal fish and wildlife committees. The Commission has technical and legal resources that provide assistance to the tribes in protecting and enhancing their federally reserved trust resources.

[2] With respect to abundance, Pacific lamprey is in much worse condition than salmon with dramatic declines evidenced in the last 15-20 years (CRITFC 2008).

December 2023 Stay Agreement (also referred to as the Resilient Columbia Basin Agreement, RCBA). The recommended changes are noted below:

- Primary among the concerns is the need to modify the dates used in the Proposed Order to cover spill operations at many of the mainstem dams on the Columbia. Without this date modification in the Proposed Order, spill operations in the fall and March may be impacted by reverting to the EPA 110% TDG standard. CRITFC recommends that either the dates are modified to cover these new spill operations or spill that is identified as fish protection be covered under the 120% tailrace standard used from June 16 to August 31, similar to how Washington Department of Ecology covers spill outside the standard spill season. Either of these modifications would better ensure that the operations outlined in the RCBA are aligned with the Proposed Order and would avoid in-season issues, reductions in fish protection and confusion or delay.

- As noted in the comments regarding the Proposed Order provided by Oregon Department of Fish and Wildlife (ODFW) and the Fish Passage Center (FPC), section 6.b) continues to utilize an automatic spill reduction. This automatic response is based on the monitoring of gas bubble trauma (GBT). While the dam-based GBT monitoring has a long history and extensive review, the current non-salmonid GBT monitoring done in the tailrace is still an evolving program. Issues have been identified (see FPC comments and memorandums) and improvements are ongoing. Further, some modifications to the automatic reduction of spill have already occurred. For these reasons and those outlined by FPC and ODFW, CRITFC does not support an automatic reduction in spill based on the non-salmonid GBT monitoring and concurs with ODFW and FPC that this decision should be left to the DEQ Director rather than being automatic. This would allow the Director to determine whether a spill reduction is warranted under current conditions.

- As noted in the ODFW comments there is some level of confusion on how to determine the total dissolved gas level outside of the spring and summer spill seasons. We concur with ODFW that using the average of the highest 12 hours in a 24-hour period makes the most sense and would avoid confusion and ensure the fish protection operations are not impacted inevitably. This would also support the new operations outlined in the RCBA.

In conclusion, CRITFC believes the addition of our suggested modifications would better align the proposed DEQ order with the operations outlined in the RCBA. Full implementation of the entire RCBA suite of actions means that more salmon and steelhead will be afforded spill passage, in which the weight of evidence clearly indicates will increase both direct and indirect survival of these tribal cultural and trust resources. Should you have technical questions regarding these comments, please contact Thomas Lorz at (503) 238-0667.

Sincerely,

DocuSigned by:
E550DEF4225C438...
Aja K. DeCoteau
Executive Director

Reference: CRITFC. 2008. Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin. Available at critfc.org.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
911 NE 11th Avenue
Portland, Oregon 97232-4181

In Reply Refer to:
FWS/R1/FAC

David Gruen
Columbia River Coordinator
Oregon Department of Environmental Quality
700 NE Multnomah St., Ste 600
Portland, OR 97232

Subject: U.S. Fish and Wildlife Service comments on the Draft Proposed Total Dissolved Gas Modification Order for the Mainstem Columbia River

Dear Mr. Gruen:

The US Fish and Wildlife Service appreciates the efforts of the Oregon DEQ to accommodate the modified spill operations at the U.S. Army Corps of Engineers Dams on the Columbia and Snake Rivers. However, we do have some concerns with the draft total dissolved gas (TDG) modification order.

The order is very focused on salmon and steelhead smolts and the potential benefits and impacts to those species. While we support the efforts of the regional fish managers to improve the status of Endangered Species Act listed salmon and steelhead smolts, we also feel that these efforts need to be balanced with consideration of potential harm to native resident fishes. We were disappointed that none of the concerns cited in our letter from May 22nd of this year were included in the discussion of potential harm from the new spill operations.

The section on potential harm to resident fishes is very weak, as it makes no reference to any recent study on native resident fishes; e.g., the Tiffan (2024) lab study on sculpin and stickleback, and refers only to a study from 1995 as the basis for its conclusions on resident species. In the 1990's there was no voluntary spill for fish passage, and TDG would only have been high during short periods when powerhouse capacity was exceeded. The Toner and Dawley (1995) study cited in the draft order examined gas bubble disease (GBD) in fishes below Bonneville Dam in 1993, when TDG exceeded 120% for a period of 11 days in May of that year, and never exceeded 122%. Given the relatively low levels and duration of TDG that occurred that spring, it's not surprising that "external signs of GBD were infrequent". This draft order is dealing with a spring spill season that will have TDG limits of 125% at three of the four lower Columbia dams, and likely around 120% at the fourth (The Dalles). It will also last for 66 days.

While the draft order correctly says that there were no TDG exceedances in the mainstem Columbia River from 2021 to 2024, it fails to mention the exceedances that occurred in the Snake River due to the high prevalence of GBT observed in sculpin at Ice Harbor Dam combined

with low species abundance at that location. These recent exceedances reinforce the need for more research to understand the population level impacts to sculpin from the high TDG levels during spring spill.

The draft order fails to clarify what the TDG limit is for spring and fall steelhead overshoot spill. Spill at this time of year has needed clarification in the past couple years, so it would be best to state the limits for this spill period.

We are attaching a copy of our letter from May 22nd of this year to reiterate our concerns and questions regarding potential impacts to native resident species from the upcoming spill operations.

Thank you for the opportunity to participate in the process of updating the Oregon Administrative Rule governing TDG levels in the lower Columbia and Snake Rivers. If there are any questions regarding our comments, please contact Dave Swank (david_swank@fws.gov) or Erin Kuttel (erin_brittonkuttel@fws.gov).

Sincerely,

Erin Britton Kuttel

Columbia River System Coordinator

Attachment:

United States Department of the Interior

FISH AND WILDLIFE SERVICE
911 NE 11th Avenue
Portland, Oregon 97232-4181

In Reply Refer to:
FWS/R1/FAC

Chad Brown
Water Quality Hydropower Unit Supervisor
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504

David Gruen
Columbia River Coordinator
Oregon Department of Environmental Quality
700 NE Multnomah St. Ste 600
Portland, OR 97232

Subject: U.S. Fish and Wildlife Service Concerns, Questions and Considerations Regarding Columbia River System Gas Bubble Trauma Incidence Monitoring and Calculations

Dear Mr. Brown and Mr. Gruen:

The U.S. Fish and Wildlife Service (Service) has reviewed requested revisions to incidence calculations included within the *Spring 2024 USGS Columbia River System Gas Bubble Trauma in Non-salmonid Fish Study Plan* provided by the U.S. Army Corps of Engineers and the Bonneville Power Administration. In combination with our review of *Nonsalmonid Gas Bubble Trauma Investigations* (Tiffan 2024), and recent studies of gas bubble trauma in fishes in the Clark Fork River basin (Kusnierz et al 2024) and in British Columbia (Kovac et al 2022; Pleizier et al 2023; 2024), the Service is writing to provide questions, concerns, and considerations related to monitoring and evaluation of total dissolved gas (TDG) and gas bubble trauma (GBT) in resident aquatic species.

The Service is concerned about potential unintended consequences related to impacts of high TDG and GBT on sculpin and other native resident aquatic species during high TDG spill operations for juvenile salmon fish passage. As you are likely aware, western ridged mussel (*Gonidea angulata*) have been petitioned for listing under the Endangered Species Act (ESA), and sculpin (*Cottus sp.*) are the known obligatory host of western ridged mussel glochidia within the Columbia River Basin. Several other amphibians and invertebrate aquatic species that use the Columbia and Snake rivers and their shorelines are also proposed or petitioned for listing at this time. In addition, native resident aquatic species, including both non-salmonids and salmonids, play a key role as forage for many species within the river ecosystem, including ESA-listed bull trout.

After review of recent gas bubble trauma studies in other areas of the Columbia River Basin, monitoring study plans, incidence rate calculations and clarifications, and other relevant

information, the Service offers the following questions, concerns, and comments for Oregon Department of Environmental Quality (ODEQ) and Washington Department of Ecology (Ecology), referred to collectively as the water quality agencies, to consider in ongoing discussions around GBT monitoring and water quality standards.

- In Tiffan (2024), GBT rates in sculpin and three-spine stickleback were significant and individuals often showed signs of GBT in body areas not included within existing protocol observation methods used to determine incidence rates such as on the lateral line, head, and paired fins. Do the water quality agencies plan to re-evaluate existing protocols used to document GBT incidence rates based on the new data to better represent the likely effects of GBT on varying species?

- In a lab setting, Tiffan (2024) also summarized positive buoyancy in fish with severe GBT. It is unclear if similar consequences for impaired fish occurs in the wild, which may impact the efficacy of current sampling methods. Given this, the Service is concerned that existing monitoring protocols may not adequately collect individuals affected by GBT or may miss or exclude fish mortalities. Further, incidence rate calculations may not be fully representative of GBT on native resident fish in the wild.

- The Service is concerned the proposed revisions to the GBT incidence rate calculation methods by the Washington Department of Ecology (Ecology), while intended to reduce bias toward a single species, likely introduces other biases about rare species or less sensitive species. What is the rationale for a denominator of 10 for low or rare species? Is it necessary to have both a minimum denominator, but also a combined rare species option? How does this relate to the base denominator that does not necessarily equal the number of species sampled? In addition, different calculation methods for the lower Snake River (Ecology) and the lower Columbia River (ODEQ and Ecology) result in confusion and inconsistencies on approach.

- Gear bias may be a major influence in the species of fish collected at each site. Boat or barge electrofishing has been used in other assessments to target fish species that can vary depths and are not necessarily shoreline oriented such as whitefish or peamouth. In most cases, boat electrofishing has limited efficacy in water deeper than three meters, and sampling approaches are focused on shorelines. Has this method been considered for fish collection? How about minnow traps or similar methods that are more passive in collection? Gear methods may also bias toward more sedentary species or species that wedge into rocks if buoyancy is impacted.

- How are other salmonid species impacts being considered? Current methodologies and assessment requirements focus on juvenile salmon in the bypass or non-salmonids in shoreline collections. What considerations or impacts are being documented or assessed for other resident salmonids, such as mountain whitefish, rainbow/redband trout, or coastal cutthroat, that may not be found in smolt monitoring facilities or are not shoreline oriented?

- Kusneirz et al (2024; Figure 2) suggests GBT incidence rates increase with the 7-day TDG average over 110% for several days. How is this information going to be incorporated into assessing impacts to all aquatic life?

- Given the *Rule Implementation Plan* (Ecology 2019) was developed prior to current spill operations, does Ecology propose revisions to the plan to update to current spill operations within the Lower Columbia and Snake River?
- Ecology's TDG Rule (WAC 173-201A-200(1)(f)(ii)(B)(I)) and ODEQ TDG Order (OAR 340-41-0104 (3)6(c)) include caveats related to Endangered Species Act consultation. In the event an aquatic resident species such as western ridged mussel are listed, the new studies above may play a significant role in the application of these rules. How do Ecology and ODEQ propose addressing new listed aquatic species while the current TDG rules include biological monitoring requirements and associated triggers that focus on fish species only?

While the Service recognizes the intent of increased spill within the lower Columbia and Snake rivers as beneficial to juvenile salmon and steelhead migration, we recommend caution regarding potential unintended consequences to other resident native aquatic species important to the overall ecosystem function and resiliency of the basin. The Service looks forward to continuing discussions with the state water quality agencies, sovereigns, and other federal agencies on this important subject to identify monitoring methodologies, sampling locations, and triggers necessary to protect aquatic species in the Columbia and Snake rivers.

Please reach out to me at Erin_BrittonKuttel@fws.gov; 360-742-9659, if there are any questions regarding this letter.

Sincerely,

Erin Britton Kuttel

Columbia River System Coordinator

cc:

John Palmer, U.S. Environmental Protection Agency, Region 10
Dan Feil, US Army Corps of Engineers NWD
Benjamin Zelinsky, Bonneville Power Administration
Ritchie Graves, National Marine Fisheries Service
Scott Hoefer, Bureau of Reclamation

Literature Cited

Kovac, A., Pleizier, N. K., & Brauner, C. J. (2022). The effect of total dissolved gas supersaturation on gas bubble trauma in juvenile Rainbow Trout (*Oncorhynchus mykiss*), juvenile kokanee (*Oncorhynchus nerka*), and two age classes of White Sturgeon (*Acipenser transmontanus*). *Canadian Journal of Fisheries and Aquatic Sciences*, 79(2), 249–256. https://doi.org/10.1139/cjfas-2020-0448

Kusnierz, Paul, Kenneth Bouwens, Andrew Ransom (2024). Predicting the likelihood of gas bubble trauma in fishes exposed to elevated total dissolved gas in the lower Clark Fork River, Idaho. *Transactions of the American Fisheries Society.* 2024;153:39–5. https://doi.org/10.1002/tafs.10445

Pleizier NK, Brauner CJ. (2024) Causes and consequences of gas bubble trauma on fish gill function. J Comp Physiol B. 2024 Mar 7. https://doi.org/10.1007/s00360-024-01538-4.

Pleizier NK, Cooke SJ, Brauner CJ (2023) Does swimming activity influence gas bubble trauma in fish? River Res Appl 39(1):65–72. https://doi.org/10.1002/rra.4069

Tiffan, Kenneth (2024). Nonsalmonid Gas Bubble Trauma Investigations. US geological Survey. Cook, WA. Prepared for US Department of Energy, Bonneville Power Administration. January 2024.

PUBLIC POWER COUNCIL
Bringing public power together

650 NE Holladay St, Suite 810
Portland, OR 97232
(503) 595-9770
www.ppcpdx.org

October 11, 2024

Mr. David Gruen
Columbia River Coordinator
Oregon Department of Environmental Quality
700 NE Multnomah St, STE 600
Portland, OR 97232

Submitted electronically to David.Gruen@deq.oregon.gov

Dear Mr. Gruen,

The Public Power Council (PPC) appreciates the chance to comment on the Oregon Department of Environmental Quality's (DEQ) Proposed Modification to the Total Dissolved Gas Standard on the Mainstem Columbia (Draft Order).

PPC is the broadest trade association representing the interest of Northwest non-profit, public power and cooperative utilities. PPC members are eligible preference customers of the Bonneville Power Administration (BPA) and rely on the output of Federal Columbia River Power System (FCRPS) for economic, reliable, and environmentally responsible power supply to serve their communities at cost. The FCRPS includes the four multi-purpose hydro facilities at issue in the Draft Order (Bonneville Project, The Dalles Lock and Dam, John Day Project, and McNary Lock and Dam).

PPC is concerned that the Draft Order does not provide sufficient information in its findings for a fully informed decision on a final order.

Specifically, the Draft Order focuses on biological threshold exceedances for gas bubble trauma (GBT). However, GBT risk is a spectrum, and increased levels of total dissolved gases (TDG) can cause damage to salmonids and resident fish species at higher rates of incidence without triggering biological threshold exceedances that would automatically reduce spill levels. The order should include GBT incidence rates as the appropriate metric to assess risk rather than biological exceedance thresholds. The order should also

describe the difference in GBT incidence rates observed in conjunction with the increase in TDG threshold to 125% in 2020 compared to the previous threshold of 120%.

PPC also supports BPA's recommendation for inclusion of the most recent, best-available science on GBT, including the U.S. Geological Survey 2024 report "Nonsalmonid Gas Bubble Trauma Investigations."

In addition to these comments, PPC urges careful consideration of the comments of BPA on this matter.

Thank you for your consideration of these comments.

Sincerely,

Michael Deen
Policy Director
Public Power Council

MEMORANDUM

Yakama Nation Fisheries

Columbia River
Honor. Protect. Restore.

OFFICE
P.O. Box 151
401 Fort Road
Toppenish, WA 98948

PHONE
(509) 865-5121 x6308

FAX
(509) 865-6293

EMAIL
carl@yakamafish-nsn.gov

WEB
Yakamafish-nsn.gov

Date: October 11, 2024

To: David Gruen, ODEQ
David.gruen@deq.oregon.gov

From: David Blodget III, YNF Program Manager
Keely Murdoch, YNF Hydro System Coordinator
Tom Iverson, YNF Regional Coordinator

Subject: Comments on draft five-year total dissolved gas modification order for the mainstem Columbia River

Thank you for the opportunity to submit comments on the Oregon Department of Environmental Quality's Proposed Order Approving a Modification to Oregon's Water Quality Standard for Total Dissolved Gas in the Columbia River Mainstem (Proposed Order, Oregon Administrative Rule (OAR) 340-041-0031). We strongly support the comments submitted by the Columbia River Inter-Tribal Fish Commission (CRITFC), Oregon Department of Fish and Wildlife (ODFW), and the Fish Passage Center (FPC). We hope you will give their comments serious consideration in your final ruling.

We can sum our three highest priorities in the following statements:

1) Overall, we support the continued implementation of a 125% tailrace Total Dissolved Gas (TDG) standard (based on an average of the 12 highest hourly TDG measures in a calendar day) for the April 1 - June 15 period and a 120% tailrace TDG standard for the June 16 - August 31 period.
2) We support expanding the dates for fish protection (up to 120% TDG) to match the December 14, 2023 Resilient Columbia Basin Agreement (RCBA) operations, including fall spill (September-November) and winter spill (March), and updating the methods to include the average of the highest 12-hours in a 24 hour period for calculating TDG in the fall and winter spill periods.
3) Please remove the automatic trigger for spring spill reduction based on the occurrence of Gas Bubble Trauma in non-salmonids. Curtailing Endangered Species Act (ESA) protections for salmon and steelhead should be a thoughtful decision by the DEQ Director based on all available information. The current action criteria were developed for salmon and are being applied to non-salmonids. Essentially, occurrence of TDG in a sub-population of unlisted non-salmonids is restricting population scale protections for ESA listed salmon and steelhead.

We strongly support alignment of ODEQ's Water Quality Standard with the RCBA. This is also consistent with the recent Executive Order from Governor Tina Kotek. Full implementation of the entire RCBA suite of actions, adjusted through adaptive management, means that more salmon and steelhead will be afforded spill passage, in which the weight of evidence clearly indicates will increase both direct and indirect survival of these tribal cultural and trust resources.

Please contact Tom Iverson at (971) 221-8561 if you have questions or need clarification regarding our comments.

October 11, 2024

Comment submitted via email: David Gruen@deq.oregon.gov

Oregon Department of Environmental Quality
Attn: David Gruen 11th Floor
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Dear Mr. Gruen,

Northwest RiverPartners (NWRP) appreciates the opportunity to provide comments to the Oregon Department of Environmental Quality (DEQ) on the Proposed Modification to the Total Dissolved Gas Standard (Draft Order).

In short, the draft order does not account in appropriate detail for the potential risk of gas bubble trauma to juvenile salmonids and resident fish, including those species listed under the Endangered Species Act. NWRP believes that the order should use gas bubble trauma incidence rates as the metric to describe level of risk instead of relying on instances of biological threshold exceedances, which only indicate an unacceptable level of risk.

NWRP represents more than 90 organizations across the Bonneville Power Administration (BPA) footprint. Our members include community electric utilities in Oregon, Washington, Idaho, Montana, Utah, Nevada, and Wyoming. We also proudly represent partners that support clean energy, low-carbon transportation, and agricultural jobs.

NWRP believes that the order should accurately account for changes in gas bubble trauma incidence frequency compared to previous DEQ orders. We respectfully request that DEQ seek detailed information about the incidence of gas bubble trauma exposure through the increase in the total dissolved gas standard to 125%.

Additionally, the order should rely on the best available current science. In comments submitted by the Bonneville Power Administration, we note that a 2024 USGS Report, *Nonsalmonid Gas Bubble Trauma Investigations,* outlines two instances where spills were reduced on the lower Snake River due to exceedances of the gas bubble trauma standard in Washington State.

Last, we respectfully request that you carefully consider the substantive comments provided by the Bonneville Power Administration.

Thank you again for this opportunity to comment. Please reach out to me at clark@nwriverpartners.org should you have any questions.

Sincerely,

Clark Mather
Executive Director
Northwest RiverPartners