

November 15, 2019

Oregon Environmental Quality Commission
c/o Paula Calvert, Columbia River Coordinator
700 NE Multnomah St., Suite 600
Portland, OR 97232

Sent via email to: calvert.paula@deq.state.or.us

RE: Modification of Columbia River Total Dissolved Gas Water Quality Standard

Dear Oregon Environmental Quality Commissioners and Oregon DEQ,

The fifteen undersigned organizations support modifying the Columbia River water quality standard for total dissolved gas to 125 percent of saturation for at least the next five years. By approving the modification, the Environmental Quality Commission (Commission) would take a step toward restoring salmon and steelhead in the Columbia River.

Restoring healthy, abundant salmon and steelhead runs in the Columbia River is extremely important to the undersigned organizations, our members, and the many Oregonians who appreciate, eat, and make a living from these once-plentiful fish. Moreover, the highly endangered Southern Resident orcas, a fish-obligate population that specializes on Chinook salmon, require an immediate increase in prey availability, including Columbia River Chinook salmon, to avoid extinction.

Sending more water over the spillways of Columbia River dams during the spring and summer would help juvenile salmon and steelhead migrate successfully to the ocean.^{1, 2} Increased spill has been found to reduce harmful powerhouse encounters, predation of juvenile migrants in reservoirs due to shorter migration travel time, and exposure to high water temperatures as a result of reduced transit time, especially in low-water years. And decades of studies, as well as anecdotal evidence, show that dissolved gas concentrations at and above 125 percent of saturation rarely result in gas bubble trauma in salmon, steelhead, or other aquatic life. Unfortunately, Oregon's current water quality standard unnecessarily limits the amount of water that can be directed over the dams' spillways—to the detriment of Oregon's iconic, imperiled,

¹ See *Nat'l Wildlife Fedn. v. Nat'l Marine Fisheries Serv.*, 2017 U.S. Dist. LEXIS 44026, *26 (D. Or. Mar. 27, 2017) (J. Simon) (reviewing scientific evidence linking increased spill to salmon survival, and agreeing with Judge Redden's conclusion that more spill "can offer immediate survival benefit").

² See Tucker Jones (ODFW), [Salmon, Spill, and the Flexible Spill Agreement Presentation to the Commission](#), Slide 4 (May 17, 2019) (showing predicted Snake River spring/summer Chinook smolt-to-adult return rates as a function of different spill and dissolved gas levels).

and economically important salmon and steelhead. We therefore strongly support the proposed modification of the Columbia River dissolved gas standard to 125 percent, pursuant to the Commission’s authority under OAR 340-041-0104(3).

The 125-percent dissolved gas standard is biologically appropriate during juvenile salmon and steelhead migrations and could be safely implemented on a full-time basis. According to the Oregon Department of Environmental Quality,³ in 2018, the Fish Passage Center examined 6,074 juvenile salmonids that had traveled through the Columbia River hydro system, some of which had experienced naturally occurring dissolved gas levels above 125 percent. Just one percent of those fish had signs of gas bubble trauma and none were seriously affected. In 2017—when high runoff caused dissolved gas levels significantly to exceed Oregon’s water quality standard—only 1.2 percent of the 6,424 juvenile salmon and steelhead sampled showed any gas bubble trauma. Less than 0.1 percent of those 6,424 fish showed serious gas bubble trauma. Sampling during frequent periods of involuntary spring spill, when dissolved gas levels were well above 125 percent, found the incidence of gas bubble trauma well below Oregon’s already-conservative thresholds for reducing spill. Thus, the proposed water quality standard modification would not unduly expose juvenile salmon or steelhead to gas bubble trauma.

The long-running Comparative Survival Study produced by the Fish Passage Center provides a sound biological basis for modifying the dissolved gas water quality standard to 125 percent of saturation. The model incorporates decades of empirical evidence about spill, dissolved gas, and juvenile salmonid survival, including data on the effects of dissolved gas at levels well above 125 percent. The Comparative Survival Study shows that spill to 125 percent is safe for juvenile fish; but it also predicts that increasing spill to 125 percent would significantly increase smolt-to-adult survival for some Columbia basin salmon runs.⁴ Accordingly, the proposed water quality standard modification would bring the Columbia River closer to fully supporting the designated beneficial use of juvenile salmon and steelhead migration, without any adverse environmental effects.

Finally, we urge the Commission to amend its proposed order at part 1(iv)(a)(ii) to set the “instantaneous” dissolved gas limit at 130 percent—rather than at 126 percent, as the order currently proposes. Raising the instantaneous limit to 130 percent will allow the maximum beneficial spill to enhance fish survival and avoid instances where spill might be unnecessarily reduced below the 125 percent average spill limit, for which Oregon negotiated in Flex Spill

³ For all references in this paragraph, *see* Memorandum from Paula Calvert to the Commission, [2018 Annual Report on Columbia River Total Dissolved Gas and Spill for Fish Passage](#), pp. 1–2 (May 1, 2019).

⁴ Fish Passage Center, [2017 Annual Report: Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye](#), p. 50 (December 2017).

Agreement. Moreover, spill to 130 percent is perfectly safe for fish. Observations of salmon and steelhead during involuntary spill events when dissolved gas levels reached 130 to 139 percent show that the incidence of gas bubble trauma was well below Oregon's already-conservative action thresholds.⁵ An instantaneous limit of 130 percent is supported by the science and will ensure that Columbia River salmon and steelhead actually experience the benefits of spill to 125 percent on an average basis.

In conclusion, we urge the Commission to modify the Columbia River water quality standard for total dissolved gas to 125 percent of saturation beginning in 2020 and lasting for at least five years thereafter. Thank you for your consideration.

Sincerely,

s/ Miles Johnson

Senior Attorney, Columbia Riverkeeper

Submitted on behalf of the following organizations:

American Rivers

Association of Northwest Steelheaders

Columbia Riverkeeper

Greater Hells Canyon Council

Institute for Fisheries Resources

Natural Resources Defense Council

Nimiipuu Protecting the Environment

Northwest Environmental Defense Center

Northwest Sportfishing Industry Association

Pacific Coast Federation of Fishermen's Associations

Pacific Rivers

Save Our Wild Salmon Coalition

Sierra Club, Oregon Chapter

Whale and Dolphin Conservation

Whale Scout

cc'd via email:

- Richard Whitman, Director, Oregon DEQ
- Jason Miner, Natural Resources Policy Advisor, Office of Governor Kate Brown
- Tucker Jones, Ocean Salmon and Columbia River Program Manager, ODFW
- Carl Merkle, Salmon Recovery Policy Analyst, CTUIR
- Paul Ward, Program Manager, Yakama Nation Fisheries
- JP Patt, Columbia River Planner, CTWSRO Fisheries Department
- Dave Cummings, Nez Perce Tribe OLC

⁵ See Tucker Jones (ODFW), [Salmon, Spill, and the Flexible Spill Agreement Presentation to the Commission](#), Slide 5 (May 17, 2019).