



May 7, 2024

Marla Koberstein
Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

Submitted via Ecology web portal.

**RE: Proposed Revisions to Chapter 173-201A WAC
(Aquatic Life Toxics Criteria) – 6PPD-quinone**

Dear Ms. Koberstein,

On behalf of the Washington Council of Trout Unlimited (WCTU) and our more than 4,500 members across the state, we write to support the Department of Ecology's proposed adoption of an 8 ng/L freshwater acute water quality criterion (WQC) for 6PPD-quinone (N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine-quinone) ("6PPD-q"). As Ecology well understands, 6PPD-q from tire wear particles has been identified as the primary cause of pre-spawn mortality in coho salmon (*Oncorhynchus kisutch*) entering the creeks, streams, and rivers of Western Washington. Further research has linked 6PPD-q runoff to toxicity and mortality in other fish species, including Chinook salmon (*O. tshawytscha*), rainbow trout (*O. mykiss*), brook trout (*Salvelinus fontinalis*), and white-spotted char (*S. leucomaenis pluvius*). The scope of lethality from 6PPD-q runoff will likely only increase as more species are studied.

Indeed, the Washington State legislature has recognized the significance of controlling the runoff of 6PPD-q and the impact on coho salmon when it enacted Substitute House Bill 5931 last session:

The legislature also finds that 6PPD-quinone is directly linked to urban runoff mortality syndrome, a condition where Coho salmon die before spawning. 6PPD-quinone is known to be toxic to aquatic species and is the primary causal toxicant for Coho salmon.

While SSB 5931 is an initial and important step in eliminating 6PPD-q from our waterways, Ecology's proposed WQC is necessary because it sets an actual numerical criterion at an aggressive and well-justified level. WCTU offers the following comments in support of the proposed WQC for 6PPD-q.

A. WCTU supports Ecology's adoption of the 8 ng/L criterion for 6PPD-q.

WCTU thanks Ecology for recognizing the need for a WQC for 6PPD-q and being the first state to adopt a numerical standard. Even EPA has yet to adopt a numerical limit for 6PPD-q. It is appropriate that Washington State has taken this initial step because of the huge cultural, spiritual, recreational, and commercial significance of coho salmon, especially for the tribes in Western Washington. Without guidance from EPA or other states, Ecology has set a WQC at a level that focuses on the toxicity to coho salmon. While Ecology might have taken a less aggressive approach and adopted a WQC based on other taxonomic families or EPA's single species alternative method, it

chose a more conservative standard based on the lowest reported 24-hour LC₅₀ value. WCTU supports Ecology's approach and reasoning.

B. Ecology is justified in setting the criterion at 8 ng/L because of the high cultural, recreational, and commercial significance of coho salmon.

Ecology correctly proposed a more stringent standard than would otherwise have been calculated from EPA's eight taxonomic family method, as outlined in *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (1985). It has been barely three years since the researchers first identified the link between 6PPD-q and high coho mortality in urban streams. Tian, Z. et al., 2021. *A ubiquitous tire rubber-derived chemical induces acute mortality in coho salmon*. *Science*, 371(6525). Since then, there has been considerable additional research on the toxicity of 6PPD-q, and more research is continuing. It seems likely that additional research will reveal that 6PPD-q is toxic to other species of fish and aquatic life.

It is especially important to establish conservative and protective WQC for 6PPD-q because of the immense cultural, tribal, recreational, and commercial value of coho salmon to the Pacific Northwest. See Governor's Salmon Recovery Office, *2022 State of Salmon in Watersheds* (2022). In particular, it is especially important that Washington protect its coho salmon runs to honor the treaty obligations to Washington's tribes. The Salmon Recovery Office wrote,

Salmon are central to Washington tribes' cultures, identities, and businesses. Through treaties with the federal government, many tribes exchanged land for guaranteed, perpetual access to hunting and fishing areas. Other tribes in Washington never ceded their claims to ancestral lands and still rely on salmon. Washington State is obligated to uphold fishing rights for tribes and has a duty to ensure salmon are abundant enough for harvest. Tribes and the State co-manage salmon resources, and tribes have led salmon recovery efforts throughout the state.

2022 State of Salmon in Watersheds (2022) (<https://stateofsalmon.wa.gov/executive-summary/why-recover-salmon/>). Ecology correctly and easily concluded that coho salmon are of high cultural, recreational, and commercial value, and warrant more protective WQC than might otherwise be derived. EPA likewise recognizes that more stringent WQC is warranted for sensitive species that are commercially or recreationally important. EPA, *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (1985); EPA, *Revised Deletion Process for the Site-specific Recalculation Procedure for Aquatic Life Criteria* (2013).

Ecology also correctly elected not to propose a 6PPD-q WQC based on EPA's single species alternative method. While this method resulted in a more stringent standard than the eight-species method, Ecology recognized that a criterion of 34 ng/L would still result in significant toxicity to coho salmon and that the toxicity tests may significantly underestimate 6PPD-q's toxicity if those tests were run for 96 hours. Given the extended rainfall patterns and long duration of high stormwater flow events in Western Washington, it is more realistic to assume longer-term exposures to 6PPD-q of 96 hours than the shorter 24-hour exposure. WCTU agrees with and supports Ecology's use of the 5th percentile value to derive an 8 ng/L WQC for 6PPD-q.

C. Ecology could justify an even lower criterion based on 1/10th of the 96-hour LC₅₀ toxicity.

Not only does Ecology's *Technical Support Document* (Feb. 2024) (the "TSD") provide a reasonable justification for the 8 ng/L WQC, but Ecology could have proposed an even stricter WQC. Ecology explained that most toxicity tests on coho salmon were 24 hours long and that most toxicity tests for invertebrates are 96 hours. Ecology posited that the LC₅₀ result for coho might be twice as conservative if the tests were run for 96 hours, based on prior work (Brinkman *et al.* 2022) on rainbow trout. If that were the case—and further research should be pursued—then a 96-hour LC₅₀ for coho would be closer to 20 ng/L, which would result in a WQC of 4 ng/L using the same five-fold safety factor.

D. Ecology may need to revisit the 8 ng/L criterion as more research into 6PPD-q toxicity is completed.

While WCTU supports Ecology's 8 ng/L WQC, we also recognize that a more stringent WQC may be appropriate as more research is completed on coho salmon, other salmonids, and other aquatic species of importance to Washington State. Moreover, there is scant research on the human health impacts of 6PPD-q. As further research is completed, Ecology should revisit the 8 ng/L criterion to assess whether an even lower value is necessary.

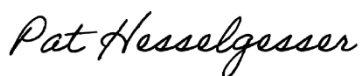
E. A WQC for 6PPD-q is only the first step; Washington State needs to phase out the sale and use of tires made with 6ppd.

WCTU believes that the only reasonable and effective strategy for protecting coho salmon and other aquatic species from 6PPD-q toxicity is to phase out the use of 6ppd in vehicle tires. While we acknowledge that it is beyond the scope of this rulemaking to address how to eliminate 6PPD-q from stormwater impacting our streams and lakes, WCTU encourages Ecology to expedite its consideration of strategies for eliminating 6PPD-q at its source—vehicle tires. We are concerned that the mere establishment of a WQC for 6PPD-q will shift the responsibility for controlling 6PPD-q away from the tire manufacturers and instead place the burden on the State, its counties and municipalities, businesses, and communities. It is unrealistic to believe that we can implement effective stormwater filtration systems on every paved surface where stormwater flows to nearby streams. Even if we could, the technology and installation costs would be enormous, as would the costs of operating, maintaining, and repairing those systems in perpetuity. The Washington legislature has identified 6ppd as a priority chemical under Safer Products for Washington law (Substitute Senate Bill 5931) and requires the Department of Ecology to identify regulatory actions and then rules to implement those actions. We strongly encourage Ecology to expedite that process.

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Thank you for considering these comments.

Sincerely,



Pat Hesselgesser – Chair
Washington Council of Trout Unlimited



Andrew M. Kenefick – Chair
WCTU Advocacy Committee