

July 25, 2024

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

RE: Chapter 173-201A WAC (Natural Conditions) Proposed Rule Draft

Dear Ms. Koberstein –

Thank you for the opportunity to comment. Washington’s cities take seriously their obligations to protect and preserve our natural environment, including through the regulation of authorized wastewater discharges. As utility operators, cities are also responsible to finance improvements needed to meet water quality standards, largely through customer rates. Being able to explain the rationale behind public works improvements to those who will pay the bill is a critical part of the responsibility city utilities owe to their customers.

AWC supports establishment of water quality criteria based on natural conditions when the waterbody does not meet numeric criteria because of those natural conditions. We also support inclusion of an anthropogenic allowance when it can be provided without harming aquatic life. Based on the information the agency has provided as part of the rulemaking, we are unable to determine what changes the proposal has on impacts to aquatic life.

Ecology has acknowledged that it has no documentation as to the scientific basis for the marine DO standards that were adopted by a predecessor agency in 1967. In its acknowledgment of the lack of a scientific foundation, the agency pointed to a report from 1968 that included recommended marine DO criteria but also included a cautionary clause regarding its recommendation: *The committee would like to stress the fact that, due to a lack of fundamental information on the DO requirements of marine and estuarine organisms, these requirements are tentative and should be changed when additional data indicate that they are inadequate.*

These “tentative” requirements have become permanent simply through the passage of time. With that 56-year standing invitation to update the underlying criteria with “the fundamental information on the DO requirements” of the organisms, it is startling that Ecology continues to move forward without seeking or incorporating information on the dissolved oxygen needs of the organisms present in Puget Sound. The rule proposal documents refer to fish species from New Zealand, which exist in a completely different ecosystem—particularly as it relates to temperature. In previous discussions on the development of the Puget Sound Nutrient General Permit, Ecology defended the existing criteria by pointing to a 2008 study that reviewed scientific literature on many species that do not exist in the Puget Sound and at

temperatures not found in the Puget Sound (ie, from the Atlantic and Gulf coasts of the U.S., the Mediterranean Sea, and even brackish ponds in Australia). We couldn't find any data from experiments conducted on the U.S. West Coast organisms in the relied-on 2008 study. We know that high water temperatures (outside of the observed range in WA marine waters) can increase species sensitivity to low DO. It is problematic to use the results from these inapposite regions as a rationale for the marine DO criteria in WA.

This is not just an academic concern. The technical support document recognizes the projected impacts of future climate change on DO conditions in marine waters, indicating more challenges as climate change accelerates. It is now more critical than ever to utilize the best available science to understand what actions are necessary to protect the health of species residing in the Puget Sound. This need is further reinforced by concerns raised in the comments received to date on this rulemaking from non-governmental organizations that seem to indicate questions about the legality, and potential litigation, of any natural conditions allowance. In this environment of uncertainty, it is prudent to ensure that we are informed by the most contemporary science about the needs of the specific species we are trying to protect.

AWC requests Ecology move forward with a natural conditions approach but restore the 0.2mg/l standard without the 10% mechanism for low DO environments as it existed in previous iterations of the criteria until further science on the dissolved oxygen needs of marine organisms in Puget Sound is undertaken. We also request that Ecology reconsider its opposition to a scientific review and potential update of the underlying Marine DO criteria because it is impossible to effectively gauge the implications of this proposal without doing so.

Finally, we ask for a response to the following questions.

1. **Impacts of climate change** –Section 5.H.13 *Dissolved Oxygen Narrative Provisions – Allowable Decreases* of the 2007 BE states:

Dissolved oxygen is a characteristic of a waterbody that can be affected by several different parameters such as temperature, physical characteristics (stream velocities, percent sediments, etc.), nutrients, sunlight, ammonia, etc. Because any oxygen demanding material or nutrient will negatively affect dissolved oxygen, meeting the “natural condition criterion” without allowing some insignificant decrease in dissolved oxygen would require disallowing any discharge of any pollutant that would affect dissolved oxygen. Absent such a provision as proposed by Washington, no oxygen demanding material would be allowed from human activities when the natural condition criteria are the applicable criterion. EPA believes that this is unnecessarily restrictive for the protection of designated uses, and would lead to unnecessary and costly expenditures.

**Comment:** Under the proposed definition of WAC 173-201A-210(1)(d) Marine Water Dissolved Oxygen, the agency proposes “Local and regional sources of human-caused pollution” means sources of pollution caused by human actions, and the pollution originates from: (1) within the boundaries of the State; or (2) within the boundaries of a U.S. jurisdiction abutting to the State that impacts surface waters of the State. On its presentation, the agency summarized: In other words, this applies only for human sources that we can regulate.

- There are no allowances for sources we cannot regulate.

- E.g., global climate, outside jurisdictional waters.
- Therefore, these sources must meet the applicable criteria.

The result is that impacts from climate change (global) are not considered under local and regional sources of human caused pollution and are also not factored in to determine the natural condition baseline, as stated during the April 24, 2024 rulemaking webinar. It is well-known that climate change in the Pacific Northwest will result in higher air and water temperature, lower pH, decreased DO, increased nutrients, and sea level rise combined with increased precipitation events leading to changes affecting flows and flushing of basins. These are all natural processes that must be accounted for in the natural conditions baseline otherwise the rule will fail: *unnecessarily restrictive for the protection of designated uses, and would lead to unnecessary and costly expenditures.*

If climate impacts (local) are not considered part of the natural conditions, and therefore need to be accounted as consideration of local and regional sources that may not cumulatively decrease DO by a threshold, how will ECY break out the components of climate related impacts that are affecting water quality that are specifically from within Washington State or abutting states/provinces as defined in the definition of “local and regional sources of human-caused pollution?” From the [performance based approach document](#), this seems in conflict with the definition of local and regional sources:

All other human-caused sources of pollution that impact the site must be accounted for as best as possible using existing, readily available, and credible information (e.g., global climate change, boundary inputs from sources outside the United States). These sources can be excluded from the model if it is not feasible to model it, but the impact of these sources must be estimated outside the model before deriving the final criteria values. While data used to address these other sources of pollution must meet credibility requirements, it may not meet other resolution or frequency requirements established in the project QAPP. Further, these data may range in database size and complexity, from simple numeric datasets to complex models that have previously been developed to estimate human impacts to water quality on a global scale. Any source or stressor that are not part of any model used in this approach must have a rationale for exclusion. These sources must not affect the parameter or site of interest. Any final natural conditions criteria values used for further state and federal Clean Water Act actions must represent the natural conditions of the water of interest as defined in **WAC 173-201A-020**: that the natural conditions reflect the water before any human-caused pollution.

**WAC 173-201A-020** defines “natural conditions” and refers the reader to **WAC 173-201A-260**, which states, in part:

(1) **Natural and irreversible human conditions.**

(a) It is recognized that portions of many water bodies cannot meet the assigned criteria due to the natural conditions of the water body. When a water body does not meet its assigned criteria due to *natural climatic* or landscape attributes, the natural conditions constitute the water quality criteria.

2. **Please share the basis for the 0.2mg/l standard.**

The technical support document summarizes the EPA guidance on natural conditions provisions as allowing for one or both of two approaches to address de minimis impacts – biological and analytical:

Biological support would be demonstrating that the proposed decrease in temperature or DO does not harm aquatic life, either on an acute or chronic level – that their designated uses are still fully protected. Analytical support would demonstrate that a proposed change cannot be detected or fully realized within the accuracy range of the analytical instrument.

Discussion in the document indicates that Ecology is confident that instrument sensitivities now allow for measuring small changes in DO, including at levels +/- 0.01mg/l or lower, indicating that the basis must be biological. Previous Ecology [materials](#) have stated that the 0.2mg/l standard was “not a biologically derived value.” Please confirm the basis for the 0.2mg/l standard.

More generally, our understanding is that the natural conditions provisions are intended to generate more reasonable criteria when water quality does not meet numeric criteria because of naturally occurring conditions. They also are intended, through the human conditions allowance, to allow for a safe and de minimis threshold for anthropogenic impacts to water quality below natural conditions *when that is still protective of the needs of aquatic organisms*. Otherwise, as EPA noted for lakes, such standards without allowing for some insignificant decreases from natural conditions, would be “unnecessarily restrictive for the protection of designated uses.”

Specific to Marine Dissolved Oxygen, we don’t have the necessary data to evaluate the impacts of this proposal without updated science on the underlying dissolved oxygen needs of the organisms present in the Puget Sound.

How can we evaluate whether the proposed decreased human allowances in low oxygen concentration environments represent safe and de minimis impacts when the underlying scientific basis for the marine DO criteria has not been publicly reviewed or updated since its adoption in 1967? Conversely, how do we know that the previous 0.2mg/l standard would not be protective? We frankly don’t know enough about the dissolved oxygen needs of the organisms we are trying to protect.

**3. Please clarify how the agency compares scientific literature relating to the DO needs of marine organisms in other parts of the world to make determinations on needs of organisms present in the Puget Sound.**

The technical support document literature review regarding the marine DO proposal related information from past DO studies performed in New Zealand to determine protective aquatic life criteria in the waters of New Zealand. Logically they studied the DO oxygen needs of fish present in New Zealand. Similarly, the review references data on the behavior of zooplankton species present in the eastern tropical North Pacific Ocean, which extends from Mexico to Peru, but does not provide any analysis indicating how relevant that behavioral observation may or may not be for zooplankton species present in the Puget Sound.

Given that average temperatures of the waters around New Zealand and South America are considerably warmer than the average temperatures of the Puget Sound, one might expect species to have adapted differently in those waters. We know that high water temperatures can increase species sensitivity to low DO, so it is problematic to use the direct results from these regions as a rationale for the marine DO criteria in WA. Please explain how Ecology identifies appropriate surrogate species and utilizes, develops

confidence in, and adapts scientific findings from very different ecological systems to Washington State.

**4. What research did the agency evaluate to arrive at 10% for the marine DO threshold?**

The technical support document indicates a scientific literature review found that the proposed standard would not harm designated uses. There was no similar information showing that the existing 0.2mg/l allowance in a low DO marine environment would harm aquatic organisms and, thus, a change was warranted. The lack of clarity and rigor regarding the scientific basis for the 1967 criteria makes evaluation of this rule proposal impossible to determine.

A rulemaking webinar made a statement that evidence exists that small deviations in DO are problematic in waters with low DO. It was unclear from the literature review in the technical support document what studies validate the statement below. Could you please confirm?

- Evidence that small deviations in waters with low DO can be harmful to aquatic life.
- 0.2 mg/L would not be insignificant in these cases.
- Therefore, we are proposing a smaller human allowance when natural conditions are less than <2.0 mg/L.
- E.g., When waters are naturally 1.0 mg/L, 10% = 0.1 mg/L allowance.

**5. Is the process of setting natural conditions and defining spatial boundaries subject to APA or rulemaking?**

**6. When is the agency planning to set the spatial boundaries and natural conditions in the Puget Sound?**

**7. Given the performance level-approach, at what water body level will the agency set the natural conditions (i.e Salish Sea, basin, inlet, region, etc.)? On what basis will this be decided on and through what process?**

Thank you again for the opportunity to provide comment on this rulemaking proposal.

Carl Schroeder  
Deputy Director of Government Relations  
Association of Washington Cities