

**Submitted Via State Public Comment Portal**

May 7, 2024

Casey Sixkiller  
Regional Administrator  
Environmental Protection Agency, Region 10  
1200 6th Avenue  
Seattle, WA 98101

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P.O. Box 47696  
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**Re: Comments on Washington's Proposed Updates to Aquatic Life Toxics Criteria, WAC 173-201A-240 (CR-102)**

Dear Ms. Koberstein and Regional Administrator Sixkiller,

Please accepted the following public comments submitted on behalf of the Center for Biological Diversity (Center) and its 1.7 million members and supporters to the Washington Department of Ecology's (Ecology) proposal to revise Washington's aquatic life toxics criteria, WAC 173-201A-240.

The Center is concerned that the proposed criteria provide insufficient protections for federally listed endangered and threatened species and, in consideration of prior national, Oregon, and Idaho Section 7 consultation findings, likely violates the Endangered Species Act's prohibition on the take of listed species. The Center, therefore, urges Ecology to revisit its proposed criteria for the benefit of endangered and threatened species and revise downward those criteria to levels that meet the obligations of the Clean Water Act to support the most sensitive aquatic life uses<sup>1</sup> and the Endangered Species Act's requirement that "endangered species [] be afforded the highest of priorities." *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 174 (1978).

**I. The Methodologies Used by Ecology and EPA for Deriving Water Quality Criteria Are Legally Deficient and Under-Protective of Endangered Species and Critical Habitats**

The presence of toxic pollutants in waterways has a significant impact on aquatic and aquatic-dependent species' survival. According to the National Marine Fisheries Service (NMFS), "degraded water quality has been one of the contributing factors for the decline of almost all of

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<sup>1</sup> See 40 C.F.R. § 131.11(a) (criteria must support the most sensitive use).

the anadromous fish species NMFS has listed since the mid-1980s.”<sup>2</sup> Cyanide, cadmium, and mercury are three toxic pollutants that present significant threats to endangered and threatened aquatic species and their critical habitats.<sup>3</sup>

Over the last two decades, a series of lawsuits and consultations regarding EPA’s national criteria and its approval of state standards and criteria for various pollutants—including cyanide, cadmium, and mercury—have raised profound concerns regarding the overall approaches that EPA utilizes in reviewing and approving water quality criteria; these cases also raise concerns about the inadequate and antiquated methodologies EPA used to establish national water quality criteria. *See, e.g., Center for Biological Diversity v. EPA*, Case No. 22-138, 2023 U.S. Dist. LEXIS 145674 (D. Ariz. Aug. 18, 2023) (finding that EPA acted unlawfully when it failed to engage in Endangered Species Act Section 7 consultation prior to issuing nationwide water quality criteria for cadmium and vacating EPA’s 2016 chronic freshwater cadmium criterion); *Northwest Environmental Advocates v. National Marine Fisheries Service et al.*, Case No. 10-907-BR (2010) (dealing with the Oregon’s Endangered Species Act consultation history and failures); *Northwest Environmental Advocates v. The National Marine Fisheries Service et al.*, Case No. 13-00263-DCN (2013) (dealing with the Idaho’s Endangered Species Act consultation history and failures).

The Center hereby attaches and incorporates into these comments past biological opinions and draft biological opinions and request they be made part of the record for this rulemaking as well as incorporated into EPA’s review of Ecology’s ultimate submission. The biological opinions describe severe methodological flaws and inadequate approaches that have inevitably yielded legally insufficient and under protective criteria. Each document included provides information that can guide Ecology’s development of its criteria. More recent science, however, suggests the need for even more protective standards to fully comply with the Endangered Species Act.

Even further, because Washington is downstream of a number of states with known aquatic toxic pollution issues, including Idaho, Oregon, and even small portions of Wyoming and Montana, some of its waters are already receiving significant pollutants from upstream states, which raises concerns about cumulative impacts, and suggests even more stringent criteria are required to address pollution in a legally sufficient manner.<sup>4</sup> While in theory, Clean Water Act section 303(d)

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<sup>2</sup> NATIONAL MARINE FISHERIES SERVICE, DRAFT ENDANGERED SPECIES ACT SECTION 7 CONSULTATION BIOLOGICAL OPINION & CONFERENCE OPINION ON THE U.S. ENVIRONMENTAL PROTECTION AGENCY’S APPROVAL OF STATE OR TRIBAL, OR FEDERAL NUMERIC WATER QUALITY STANDARDS FOR CYANIDE BASED ON EPA’S RECOMMENDED 304(A) AQUATIC LIFE CRITERIA, 270 (2010) [hereinafter NMFS National Cyanide Draft BiOp].

<sup>3</sup> While these comments focus on the cyanide, cadmium, and mercury pollution and Washington’s associated criteria, several additional pollutants are of concern to the Center. We request that Washington finalize toxics criteria across the board that are adequately protective of endangered and threatened species and their critical habitats.

<sup>4</sup> *See* EPA, Downstream Protection Guidance, Goal: Illustrate Considerations and Procedures Associated with Incorporating Downstream Protection into Development of Numeric Criteria, at 7 (2014) (describing that to develop downstream protections, the state should “establish numeric criteria in the receiving waterbody and build upstream”); *see also* 40 C.F.R. § 131.10(b) (a state “shall ensure that its water quality standards provide for the attainment and maintenance of water quality standards of downstream waters”).

total maximum daily loads (TMDLs) are the mechanism to address total pollutant loading, Washington’s TMDL program is largely moribund, it issues very few TMDLs for toxic pollutants, and its TMDLs do not take into consideration the cumulative effects of multiple toxic pollutants. For these reasons, Washington’s water quality criteria for toxic pollutants must address the need to provide full protection of these downstream waters.

While the Center is generally supportive of Ecology’s proposal to establish more stringent criteria, the proposed criteria still raise concerns regarding their effects on Washington’s threatened and endangered species, including salmonids, southern resident orcas, and amphibians. Illustratively, for example, Washington’s proposed chronic cyanide criteria is significantly higher than the level recommended in Fish and Wildlife Service’s (FWS) biological opinion on EPA’s national 304(a) cyanide criteria for bull trout. The proposal also does not appear to account for or address amphibian sensitivity to these toxics—another issue identified in FWS’s biological opinion on EPA’s national 304(a) criteria for cyanide.

## II. Washington’s Proposed Cyanide Water Quality Criteria are Not Adequately Protective of Listed Species or Critical Habitats

<b>Cyanide, Freshwater</b>	<b>Proposed Acute (µg/L)</b>	<b>Proposed Chronic (µg/L)</b>	<b>ESA Consultation History, if Applicable</b>
<b>Idaho</b>	22	5.2	Both received a jeopardy determination <sup>5</sup>
<b>EPA</b>	22	5.2	Both received a draft jeopardy determination <sup>6</sup>
<b>FWS Draft BiOp</b>	13.77	0.68	Recommended level for bull trout <sup>7</sup>
<b>NMFS Draft BiOp</b>	None Provided	None Provided	
<b>WA Ecology</b>	12	2.7	Yet to be fulfilled.

### a. Salmonids

Past consultations by FWS and NMFS on toxics criteria nationally and standards in several Pacific Northwest states indicate that the presence of cyanide threatens a number of federally listed salmonids species found in Washington, including bull trout, Chinook salmon, chum salmon, coho salmon, sockeye salmon, and steelhead.<sup>8</sup>

<sup>5</sup>NATIONAL MARINE FISHERIES SERVICE, ENDANGERED SPECIES ACT SECTION 7(A)(2) BIOLOGICAL OPINION AND MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT (EFH) CONSULTATION, 299 (2014) [hereinafter NMFS Idaho Toxics BiOp].

<sup>6</sup>FISH AND WILDLIFE SERVICE, DRAFT BIOLOGICAL OPINION ON EPA’S PROPOSED PROGRAM OF CONTINUING APPROVAL OR PROMULGATION OF NEW CYANIDE CRITERIA IN STATE AND TRIBAL WATER QUALITY STANDARDS, 298 (2010) [hereinafter FWS National Cyanide Draft BiOp].

<sup>7</sup> *Id.* at 304.

<sup>8</sup> NMFS National Cyanide Draft BiOp at 270.

On the basis of these past actions, the bull trout appears to be the most sensitive of Washington's federally endangered and threatened species that is threatened by presence of cyanide. As detailed in the above chart, Ecology's proposed criteria for cyanide are higher than levels established through past biological opinions as necessary to adequately protect bull trout as required by the Endangered Species Act.<sup>9</sup>

Cyanide has been shown to cause reduced growth rates, reproductive performance, and survival in bull trout.<sup>10</sup> High chronic levels of cyanide can reduce the number of eggs spawned by females, reduce the number of eggs that hatch, and drastically reduce the survivorship of young fish. In the biological opinion for EPA's national 304(a) cyanide criteria, FWS found that exposure to bull trout at the chronic criterion proposed by EPA would likely "substantially reduce their reproduction" and that exposure at the proposed acute criterion would likely cause "substantial reductions in survival."<sup>11</sup> Based on this "magnitude of adverse effects," FWS found that the species was likely to be extirpated from the waters where they are exposed to cyanide toxicity at either criterion amount and suggested a chronic freshwater criterion of 0.68 µg/L—significantly lower than the chronic freshwater criterion of 2.7µg/L for cyanide the Ecology proposes here.

Washington should, therefore, revisit its proposed criteria and revise downward to a proposed chronic freshwater criterion for cyanide of no more than 0.68 µg/L, more so if updated science shows that a more stringent standard is necessary to protect bull trout and other salmonid populations; the Center does not take immediate issue with Washington's proposed acute freshwater criteria but request that it be revised as necessary subject to the outcome of further Washington-specific Endangered Species Act consultation activities.

#### b. Oregon Spotted Frog

In its 2010 consultation with EPA regarding national 304(a) water quality criteria for cyanide, FWS noted a lack of data for effects of cyanide on amphibian species but concluded that because amphibians are among the most sensitive species for a significant number of the pollutants examined, it is likely that amphibian species are highly sensitive to cyanide.<sup>12</sup> There, FWS used data for relative sensitivity of amphibians to rainbow trout, since rainbow trout is a species often used for criteria development.<sup>13</sup> Based on this analysis, FWS concluded that amphibian species are estimated to be as or more sensitive to cyanide than rainbow trout and thus likely to be adversely affected by exposure to cyanide at EPA's suggested chronic criterion of 5.2µg/L.

Since that consultation was completed, the Oregon spotted frog was listed as a threatened species in 2014 and has two critically imperiled populations in Washington.<sup>14</sup> The Oregon spotted frog is considered "the most aquatic native frog species in the Pacific Northwest (PNW)."<sup>15</sup> In making

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<sup>9</sup> FWS National Cyanide Draft BiOp at 304.

<sup>10</sup> FWS National Cyanide Draft BiOp at 221.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at 250.

<sup>13</sup> *Id.*

<sup>14</sup> 79 Fed. Reg. 51,658 (Aug. 29, 2014).

<sup>15</sup> *Id.* at 51,661.

its listing determination, the FWS determined that toxic chemicals pose a hazard to the Oregon spotted frog.<sup>16</sup> Yet, Ecology does not even appear to have included the Oregon spotted frog on its list of relevant Endangered Species Act listed species.<sup>17</sup> Cyanide criteria must therefore be adjusted accordingly following Endangered Species Act consultation.

c. Orcas

Southern Resident Orcas could also be indirectly affected by Ecology’s proposed cyanide criteria due to the possible reduction in salmonid populations.<sup>18</sup> Salmon, particularly Chinook salmon, are a key food source for the southern resident orcas and if proposed criteria harm salmonids, it is likely that the orcas will suffer as well. In NMFS consultation for EPA’s national 304(a) cyanide criteria, the agency found that EPA’s criteria would “reduce freshwater production of all listed salmon species, as well as non-listed salmon species where cyanide concentrations are allowed to reach EPA’s recommended aquatic life criteria concentrations.”<sup>19</sup>

**III. Washington’s Cadmium Water Quality Criteria are Not Adequately Protective of Listed Species and Critical Habitats**

Cadmium is one of the most toxic metals to fish and can have various effects on aquatic organisms, including spinal deformities, inhibited respiration, immobility, and population alterations.<sup>20</sup> It can also cause neurotoxic effects in fish, manifesting as altered behavior, reduced growth, reproductive failure, and death.<sup>21</sup> Salmonids are particularly sensitive to cadmium pollution.<sup>22</sup> The principal acute effect of cadmium is gill toxicity, which causes an inability to breathe in aquatic organisms. Cadmium toxicity increases with water temperature.<sup>23</sup>

a. Freshwater Cadmium

<b>Cadmium, Freshwater</b>	<b>Proposed Acute (µg/L)</b>	<b>Proposed Chronic (µg/L)</b>	<b>ESA Consultation History, if Applicable</b>
<b>Oregon</b>	2.0	0.25	Acute standard received jeopardy determination. <sup>24</sup> Both standards likely to adversely affect listed species.

<sup>16</sup> *Id.* at 51,689-90.

<sup>17</sup> See Washington Dep’t. of Ecology, Proposed Updates to Aquatic Life Toxics Criteria, WAC 173-201A-240 Technical Support Document, 31-32 (2024) [hereinafter Ecology Technical Support Doc].

<sup>18</sup> NMFS National Cyanide Draft BiOp at 271.

<sup>19</sup> *Id.* at 256.

<sup>20</sup> NATIONAL MARINE FISHERIES SERVICE, JEOPARDY AND DESTRUCTION OR ADVERSE MODIFICATION OF CRITICAL HABITAT ENDANGERED SPECIES ACT BIOLOGICAL OPINION FOR ENVIRONMENTAL PROTECTION AGENCY’S PROPOSED APPROVAL OF CERTAIN OREGON ADMINISTRATIVE RULES RELATED TO REVISED WATER QUALITY CRITERIA FOR TOXIC POLLUTANTS, 270 (2012) [hereinafter NMFS OR Toxics BiOp].

<sup>21</sup> *Id.* at 271.

<sup>22</sup> *Id.* at 270.

<sup>23</sup> *Id.* at 271.

<sup>24</sup> *Id.* at 547

<b>Idaho</b>	1.3	0.6	NMFS independent analysis: standards not likely to adversely affect ESA listed Chinook salmon, sockeye salmon, or steelhead in the state, but noted that determination was location specific <sup>25</sup>
<b>EPA 2016</b>	1.8	[0.72]	No consultation. <sup>26</sup> Chronic criterion vacated to 2001 value; acute criterion levels remain in place but have been remanded back to EPA by court order <sup>27</sup>
<b>EPA 2001</b>	[2.0]	0.25	No consultation.
<b>WA Ecology</b>	1.3	0.41	Yet to be fulfilled.

For cadmium, Ecology proposes a freshwater acute criterion of 1.3µg/L and a chronic freshwater criterion of 0.41 µg/L. Since EPA’s nationwide 304(a) freshwater cadmium criterion was vacated by court order, the maximum concentration reverted back to the 2001 criterion of 0.25 µg/L; at a minimum, Washington must do the same.

However, based on the outcome of Endangered Species Act consultation, these criteria must be set at a level that is protective of federally listed species in Washington. Comparatively, the FWS biological opinion for Oregon toxics stated that “chronic exposure to cadmium at the proposed chronic level [of 0.25µg/L] is considered to have adverse effects to all bull trout potentially exposed by reducing their fitness through a reduction in growth.”<sup>28</sup> The NMFS biological opinion for Oregon similarly found that “listed species exposed to waters equal to the acute or chronic [cadmium] criteria concentrations will suffer acute and chronic toxic effects.”<sup>29</sup>

a. Saltwater Cadmium

<b>Cadmium, Saltwater</b>	<b>Proposed Acute (µg/L)</b>	<b>Proposed Chronic (µg/L)</b>	<b>ESA Consultation History, if Applicable</b>
<b>Oregon</b>	40	8.8	Listed species will suffer acute or chronic toxic effects including mortality (moderate intensity) and sublethal effects (moderate intensity) <sup>30</sup>
<b>EPA 2016<sup>31</sup></b>	33	7.9	
<b>WA Ecology 2024</b>	33	7.9	Yet to be fulfilled.

<sup>25</sup> National Marine Fisheries Service, Comments on Environmental Protection Agency’s Draft Aquatic Life Ambient Water Quality Criteria for Cadmium, 2 (Jan. 26, 2016).

<sup>26</sup> Center for Biological Diversity, EPA Approves Dangerous Water Quality Standards for Cadmium (April 1, 2016), [https://www.biologicaldiversity.org/news/press\\_releases/2016/cadmium-04-01-2016.html](https://www.biologicaldiversity.org/news/press_releases/2016/cadmium-04-01-2016.html).

<sup>27</sup> *Ctr. For Biological Diversity v. United States Env’t Prot. Admin.*, No. CV-22-00138-TUC-JCH, 2023 U.S. Dist. LEXIS 145674, at \*44 (D. Ariz. Aug. 18, 2023).

<sup>28</sup> NMFS Oregon Toxics BiOp at 193.

<sup>29</sup> *Id.* at 270.

<sup>30</sup> *Id.* at 367.

<sup>31</sup> ENVIRONMENTAL PROTECTION AGENCY, AQUATIC LIFE AMBIENT WATER QUALITY CRITERIA CADMIUM – 2016, XV (2016).

Ecology's proposed change to saltwater cadmium criteria is also likely to put threatened and endangered species at risk. Ecology proposes to set saltwater cadmium criteria at EPA's 304(a) chronic criterion of 33µg/L and acute criterion of 7.9µg/L. During the peer review of EPA's 304(a) criteria, it was pointed out that the development of these criteria was based on insufficient toxicity data for effects on anadromous salmon and that "only one study evaluated Cd toxicity in coho salmon smolts in saltwater conditions, and this was at nearly full seawater strength."<sup>32</sup> This was a concern because anadromous salmonids encounter cadmium at lower salinities. It is important to better understand the impact of varying levels of salinity on cadmium toxicity of anadromous fish species and incorporate those findings into Washington's criteria.

The same peer review also noted that sea level rise associated with climate change is likely to cause saltwater intrusion into salmonid spawning habitat making it particularly important to understand how salinity affects cadmium toxicity.<sup>33</sup> Comparatively, in NMFS's biological opinion for Oregon's cadmium criteria, the agency pointed out various issues with EPA's criteria derivation methods, including for saltwater cadmium.<sup>34</sup> Therefore, relying on the EPA's 304(a) will not necessarily result in adequate protection for threatened and endangered species and their critical habitats in Washington waters.

#### **IV. Washington's Existing Mercury Water Quality Criteria are Not Adequately Protective of Listed Species or Critical Habitats and Must be Updated**

Washington should learn from Idaho's mistakes and move forward with updating its water quality criteria for mercury.<sup>35</sup> In Idaho, which Ecology cites as a reason for not proceeding with amended mercury criteria at this time, EPA recently issued a proposed rule providing for both tissue and water column criteria for mercury.<sup>36</sup> The proposed chronic total mercury criteria are 0.225 µg/kg wet weight for muscle fish tissue, 0.162 µg/kg wet weight for whole body fish tissue, and 0.0021 µg/L for water column values.<sup>37</sup> In so doing, EPA asserted that these results were consistent with reasonable and prudent alternatives in the Services' biological opinions, and explained that it is important to include both a tissue and water column value in mercury and methylmercury criteria.<sup>38</sup>

In contrast, Washington is not only proposing to neglect updating its mercury criteria through this rulemaking but, in doing so, it is continuing to rely on an outdated freshwater chronic criterion which measures the proposed water column value at 0.012 µg/L. That is insufficient. First, "[b]ecause tissue measurements provide a more direct measure of toxicity for bioaccumulative pollutants such as mercury, . . . it appropriate to establish tissue criteria for these pollutants. However, criteria expressed as organism tissue concentrations can prove challenging

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<sup>32</sup> ENVIRONMENTAL PROTECTION AGENCY, EPA RESPONSE TO EXTERNAL PEER REVIEW COMMENTS ON THE DRAFT AQUATIC LIFE AMBIENT WATER QUALITY CRITERIA FOR CADMIUM, 39 (2015).

<sup>33</sup> *Id.*

<sup>34</sup> NMFS OR Toxics BiOp at 366-367.

<sup>35</sup> *See, e.g., Northwest Environmental Advocates et al. v. United States Environmental Protection Agency*, Case No. 13-00263-DCN (Memorandum Decision and Order, ECF No. 103, July 19, 2021).

<sup>36</sup> *See EPA, Mercury Criterion to Protect Aquatic Life in Idaho*, 89 Fed. Reg. 24,758 (April 9, 2024).

<sup>37</sup> *Id.* at 24,774.

<sup>38</sup> *Id.* at 24,762, 24,768.

to implement in CWA programs such as NPDES permitting and Total Maximum Daily Loads (TMDLs) because these programs typically demonstrate that water quality standards are met by using a water column concentration to calculate a load-based effluent limit or daily load, respectively.”<sup>39</sup> Both are needed.

Second, per Idaho’s earlier FWS biological opinion, which Ecology quotes in its TSD at 82, “[b]ased on the above information, implementation of the proposed chronic criterion for mercury is likely to adversely affect growth, reproduction, and behavior in the bull trout throughout its distribution in Idaho.” Idaho’s proposed freshwater chronic criterion was 0.012 µg/L or the same as Washington’s current criterion. This means that Washington’s mercury criteria are, a minimum, likely not to be sufficiently protective of bull trout.

## **V. EPA Methodologies for Derivation of Water Quality Criteria Do Not Prevent Adverse Effects to Listed Species and Critical Habitats**

To the extent that Ecology based its proposed criteria on EPA’s methodology, its analysis will suffer from the same issues as EPA’s methodology—issues that are detailed in the NMFS biological opinions for EPA’s national 304(a) cyanide criteria and Oregon’s toxics criteria. The Center appreciates Ecology’s attempts to account for some shortcomings in EPA’s methodology by utilizing alternative derivation methods for some toxics and by using the 1<sup>st</sup> percentile of the genus toxicity data distribution rather than the 5<sup>th</sup> percentile. However, considering the extensive flaws underlying the toxicity data developed by EPA, using the 1<sup>st</sup> percentile of that data is not sufficient to protect endangered and threatened species.

For the freshwater acute cadmium criterion, for example, Ecology appears to be using the same derivation methods as EPA’s recommendation;<sup>40</sup> for its chronic cadmium criterion, it used an EPA dataset and the 1<sup>st</sup> percentile of the toxicity distribution.<sup>41</sup> Although using the 1<sup>st</sup> percentile is more protective of species than the 5<sup>th</sup>, it is possible that issues in the underlying data still would not allow for a sufficiently protective calculation. Additionally, as discussed above, the proposed chronic cadmium criterion is in excess of the EPA criteria of 0.25µg/L, which is the current nationwide criteria following vacatur of EPA’s 2016 criteria.

For cyanide, Ecology used new science in developing its proposed acute criterion, and an “acute to chronic” (ACR) ratio to develop its proposed chronic criterion because it lacked the toxicity data needed to calculate a chronic criterion using other methods.<sup>42</sup> The ACR is the ratio of the mean LC<sub>50</sub> (concentration causing 50% lethality following acute exposure) for the species to the concentration following chronic exposure that causes a level of adverse effect that is the threshold of unacceptability.<sup>43</sup> Since the ACR was calculated by EPA and is based on underlying values that could suffer from the flaws in EPA’s methodology highlighted by NMFS in its national 304(a) cyanide and Oregon toxics biological opinions, it is possible that the values proposed by Ecology reflect some of those issues as well.

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<sup>39</sup> *Id.* at 24,762.

<sup>40</sup> Ecology Technical Support Doc. at 60.

<sup>41</sup> *Id.* at 62.

<sup>42</sup> *Id.* at 127–128.

<sup>43</sup> NMFS National Cyanide Draft BiOp at 245.



Importantly, EPA’s methodology for calculating toxicity values at which adverse effects occur *does not* adequately account for compounding stressors such as temperature, dissolved oxygen, and others on the responses of aquatic life to toxics.<sup>44</sup> In its biological opinion for Idaho’s toxics standards, FWS recommended that any new standards be calculated “using a temperature/toxicity correlation”<sup>45</sup> to account for the inverse relationship between cyanide toxicity and temperature.<sup>46</sup> Dissolved oxygen is also important to account for because in environments with less than optimal dissolved oxygen, fish compensate by increasing gill movement and ventilation volume to maintain adequate oxygen volumes. Since cyanide is a powerful asphyxiant, additional cyanide in waters with low dissolved oxygen further stresses fish and reduces the lethal concentration at which survival is expected.<sup>47</sup> In the NMFS biological opinion for the national 304(a) cyanide criteria, the agency pointed out that EPA’s attempts to “avoid confounding factors” in their analysis that prevents them from replicating realistic conditions in the wild.<sup>48</sup>

It is not clear whether or to what extent Ecology accounted for the increased toxicity of cyanide at low temperatures. This is an important consideration, particularly for salmonids that spawn in cold waters and could face serious consequences from increased toxicity of cyanide at these low temperatures. It is also unclear whether the proposed criteria accounted for the impact of low dissolved oxygen or concurrent exposures with other contaminants and stressors.

## **VI. Conclusion**

Cyanide, cadmium, and mercury pollution threatens Washington’s many endangered and threatened aquatic species. The Center urges Ecology to propose criteria that are sufficiently protective of Washington’s federally protected endangered and threatened species, including by taking into consideration toxic pollution from upstream states and accounting for EPA’s methodological limitations.

Please contact Hannah Connor at [hconnor@biologicaldiversity.org](mailto:hconnor@biologicaldiversity.org) with any questions.

Sincerely,

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Trisha Sharma

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<sup>44</sup> *Id.* at 266.

<sup>45</sup> FISH AND WILDLIFE SERVICE, BIOLOGICAL OPINION FOR THE WATER QUALITY STANDARDS FOR NUMERIC WATER QUALITY CRITERIA FOR TOXIC POLLUTANTS (2015) at 277 [hereinafter FWS Idaho Toxics BiOp].

<sup>46</sup> *Id.* at 143.

<sup>47</sup> NMFS National Cyanide Draft BiOp at 221.

<sup>48</sup> *Id.* at 266.

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