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Via Electronic and Certified Mail

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Re: Notice of Intent to Sue Under the Endangered Species Act Related to the Environmental Protection Agency's Approval of Washington's Water Quality Standards for Cyanide

Dear Administrator Regan, Secretary Raimondo, Secretary Haaland, Acting Regional Administrator Pirzadeh, Assistant Administrator Coit, Acting Director Williams, and Director Watson:

The Center for Biological Diversity hereby provides notice that it intends to sue you, the United States Environmental Protection Agency ("EPA"), the National Marine Fisheries Service ("NMFS"), the United States Fish and Wildlife Service ("FWS"), and the Washington State Department of Ecology ("Ecology"), pursuant to Section 11(g) of the Endangered Species Act ("ESA"), 16 U.S.C. § 1540(g)(2)(A)(i), for violations of the ESA.

EPA, NMFS, and FWS are each in violation of the ESA. EPA has violated its duty as mandated by Section 7(a)(2) of the ESA to ensure, in consultation with NMFS and FWS (together "the Services"), that its approval of Washington's water quality criteria for cyanide, a potent toxic, does not jeopardize the continued existence of federally-listed threatened and endangered species and/or adversely modify their critical habitat. *See* Wash. Admin. Code § 173-201A-240; 16 U.S.C. § 1536(a)(2). This violation began when EPA failed to complete consultation on its approval of Washington's new or revised cyanide criteria. EPA, FWS, and NMFS have now compounded this error by failing to reinitiate consultation in response to (1) the designation of critical habitat for the Puget Sound steelhead (*Oncorhynchus mykiss*) and the Lower Columbia River coho salmon (*Oncor hynchus kisutch*), 81 Fed. Reg. 9252 (Feb. 24, 2016), and the revised designation of the Southern Resident killer whale critical habitat, 86 Fed. Reg. 41,668 (Aug. 2, 2021); (2) new information demonstrating that several species—including Southern Resident killer whale, bull trout, Lower Columbia River Chinook salmon, Upper Columbia River spring-run Chinook salmon, Puget Sound Chinook salmon, Snake River fall-run Chinook salmon, Snake River spring/summer-run Chinook salmon, Upper Willamette River Chinook salmon, Columbia River chum salmon, Hood Canal summer-run chum salmon, Southern distinct population segment ("DPS") of the North American green sturgeon, Lake Ozette sockeye salmon, Snake River sockeye salmon, Lower Columbia River steelhead, Middle Columbia River steelhead, Snake River steelhead, Upper Columbia River steelhead, and Upper Willamette River steelhead—are now at significantly greater risk of extirpation than when Washington first submitted its criterion for cyanide; and (3) information that impacts to these species from the approved water quality criteria may be greater than previously considered.

The State of Washington is also in violation of the ESA by causing the unlawful take of listed species. Specifically, the inadequate water quality criteria for cyanide promulgated by Washington's Department of Ecology are killing and harming listed species, resulting in unlawful take of the Southern Resident killer whale, bull trout, Lower Columbia River Chinook salmon, Upper Columbia River spring-run Chinook salmon, Puget Sound Chinook salmon, Snake River fall-run Chinook salmon, Snake River spring/summer-run Chinook salmon, Upper Willamette River Chinook salmon, Columbia River chum salmon, Hood Canal summer-run chum salmon, Southern DPS green sturgeon, Lake Ozette sockeye salmon, Snake River sockeye salmon, Lower Columbia River steelhead, Middle Columbia River steelhead, Snake River steelhead, Upper Columbia River steelhead, Upper Willamette River steelhead, Puget Sound steelhead, and the Lower Columbia River coho salmon in violation of Section 9 of the ESA's prohibition on "take." Director Watson and Ecology are thus responsible for any ESA violations caused by unduly high cyanide levels in Washington waters, including as a result of any actions they authorize others to undertake in reliance on their actions as the state authority for implementation of the Clean Water Act ("CWA").

LEGAL BACKGROUND

A. Endangered Species Act

The ESA is "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation[,]" and "[t]he plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost." *Tenn. Valley Authority v. Hill*, 437 U.S. 153, 180, 184 (1978). Through the ESA, "Congress clearly intended that [agencies] give the highest of priorities and the benefit of the doubt to preserving endangered species." *Defs. of Wildlife v. Flowers*, 414 F.3d 1066, 1074 (9th Cir. 2005).

To achieve these goals, the ESA "provides both substantive and procedural provisions designed to protect endangered species and their habitats." *Am. Rivers v. Nat'l Marine Fisheries Serv.*, 126 F.3d 1118, 1121 (9th Cir. 1997). For instance, when a species has been listed or critical habitat designated under the ESA, Section 7 mandates that all federal agencies, through consultation with the Services, "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species." 16 U.S.C. § 1536(a)(2).

Consultation begins when the action agency asks the Services whether any listed or proposed species may be present in the area. 16 U.S.C. § 1536(c)(1); 50 C.F.R. § 402.12. If listed or proposed species may be present, the action agency must prepare a "biological assessment" to determine whether the listed species may be affected by the proposed action. *Id*. The threshold for a "may affect" determination and the required Section 7 consultation is low to ensure that listed species are not jeopardized. *Karuk Tribe of Cal. v. U.S. Forest Serv.*, 681 F.3d 1006, 1027 (9th Cir. 2012) (en banc).

If an agency determines that its action "may affect" but is "not likely to adversely affect" a listed species or its critical habitat, the regulations permit "informal consultation," during

which the Services may concur in writing with the agency's determination. 50 C.F.R. § 402.14(a)–(b). If the agency determines that its action is "likely to adversely affect" a listed species or critical habitat, or if the Services do not concur with the agency's "not likely to adversely affect" determination, the agency must engage in "formal consultation." 50 C.F.R. §§ 402.02, 402.14(a).

To complete formal consultation, the Services must provide the action agency with a "biological opinion" explaining how the proposed action will affect the listed species or habitat. 16 U.S.C. § 1536(b); 50 C.F.R. § 402.14. If the Services conclude that the proposed action "will jeopardize the continued existence" of a listed species or adversely modify their critical habitat, the biological opinion must outline "reasonable and prudent alternatives." 16 U.S.C. § 1536(b)(3)(A).[1]

Federal agencies have a continuing duty to reinitiate consultation on agency actions over which they retain discretionary involvement or control if:

> (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
> (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
> (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
> (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

50 C.F.R. § 402.16.

The duty to reinitiate consultation lies with both the action agency and the consulting agency. *Salmon Spawning & Recovery Alliance v. Gutierrez*, 545 F.3d 1220, 1229 (9th Cir. 2008) (citing 50 C.F.R. § 402.16). The requirement to reinitiate consultation "insure[s]" that the agency action "is not likely to jeopardize" listed species or critical habitat after the initial consultation. 16 U.S.C. § 1536(a)(2).

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[1] An action is deemed to jeopardize the continued existence of a species if the action "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02. An action adversely modifies critical habitat if it results in a "direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species." *Id.* Thus, an agency is prohibited from acting in a way that will reduce appreciably the likelihood of the species' survival *or* recovery. *Nat'l Wildlife Fedn v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 931 (9th Cir. 2008); *see* NMFS, *The Habitat Approach, Implementation of Section 7 of the Endangered Species Act for Actions Affecting the Habitat of Pacific Anadromous Salmonids*, 3 (1999) ("[I]n order for an action to not 'appreciably reduce' the likelihood of survival, it must not prevent or appreciably delay recovery.").

If the Services conclude the action is not likely to jeopardize the continued existence of a listed species or result in the adverse modification of critical habitat, the Services must provide an "incidental take statement," specifying the amount or extent of incidental taking on the listed species, any "reasonable and prudent measures" the Services consider necessary or appropriate to minimize such impact and setting forth the "terms and conditions" that must be complied with by the action agency to implement those measures. 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i). Taking of listed species without the coverage of an incidental take statement violates Section 9 of the ESA. 16 U.S.C. § 1538(a)(1)(B).

Under the ESA, "take" is defined in the "broadest possible manner to include every conceivable way" a person could harm or kill fish or wildlife. S. Rep. No. 307, 93rd Cong., 1st Sess. 1, *reprinted in* 1973 U.S. Code Cong. & Admin. News 2989, 2995. Consistent with this, the ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19). NMFS defines "harm" as including "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering." 50 C.F.R. § 222.102; *see also, Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 701 (1995) (upholding substantially identical Fish and Wildlife Service regulatory definition). NMFS has not promulgated a regulatory definition of "harass;" however, FWS regulations define "harass" as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering." 50 C.F.R. § 17.3.[2]

The prohibition against take under the ESA applies to all "persons," including state government officials. 16 U.S.C. § 1532(13) (defining "person" as including any "officer, employee, agent, department, or instrumentality of the Federal Government, of any State," or of local governments). Because of this, the ESA's citizen suit provision authorizes legal actions against any person, including any governmental agency or instrumentality, to enforce the prohibition against an action that results in the take of a listed species within the scope permitted by the Eleventh Amendment. *Id*. § 1540(g)(1); *see also Ex Parte Young*, 209 U.S. 123, 159-60 (1908) (authorizing lawsuits for prospective relief against state officials for acts in violation of federal law); *Cascadia Wildlands v. Kitzhaber*, 911 F. Supp. 2d 1075, 1080–81, 1085–86 (D. Or. 2012).

B. The Clean Water Act

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The CWA sets a "national goal that wherever attainable, an interim goal of water quality which provides for the protection and

[2] Under NMFS regulations, protections against take "apply to fish with an intact adipose fin that are part of the threatened West Coast salmon ESUs and steelhead DPSs (of the genus Oncorhynchus) listed in § 223.102." 50 C.F.R. § 223.203(a).[2]

propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." *Id.* § 1251(a)(2).

Under Section 303(c), states must set water quality standards and then must review them every three years and consider whether to revise their standards. *Id.* § 1313(c)(1). Water quality standards under the CWA must protect all existing uses in a waterbody. 40 C.F.R. § 131.12. Criteria must be based on sound scientific rationale and support the most sensitive designated use. *Id.* § 131.11(a)(1), (2). States must submit all new or revised water quality standards to EPA for review. 33 U.S.C. § 1313(c)(2)(a). EPA is required to review these changes to ensure revisions in designated water uses are consistent with the CWA and that new or revised criteria protect the designated uses. *Id*. § 1313 (c)(3). If EPA disapproves a state's water quality standards, EPA must specify "the changes needed to assure compliance with the requirements of the Act and this regulation, and shall explain why the State standard is not in compliance with such requirements."40 C.F.R. § 131.21. If the state fails to adopt the changes within 90 days, then the EPA "shall promptly propose and promulgate such standard." *Id.*

CWA Section 303(c)(2)(B) requires states to adopt water quality criteria for toxic pollutants listed pursuant to Section 307(a)(1) for which EPA has published criteria under 304(a) where the discharge or presence of these toxics could reasonably be expected to interfere with the designated uses adopted by the state.

FACTUAL BACKGROUND

A. Cyanide

Fish are among the most sensitive of animal taxa to injury and death from cyanide. Ronald Eisler, *Cyanide Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Revie*w, 85 U.S. Fish. Wild. Serv. Report (1991) at 22. Cyanide harms animals by binding cytochrome C oxidase and inhibiting aerobic cellular respiration and the activity of certain enzymes. *Id.* at 9, 10, 11. Fish subject to acute cyanide poisoning experience hypoxic apoxia due to a lack of sufficient oxygen and display distress, increased ventilation and gill movement, surfacing, frantically swimming in circles at the surface, or violently swimming at the bottom of the water column, convulsions, tremors, and ultimately death. *Id*. at 22, 23–26. Cyanide in lakes and rivers has resulted in massive fish kills. *See, e.g.*, Morgan Krakow, *Cyanide from a steel plant trickled into Lake Michigan for days before the public was notified*, WASHINGTON POST (August 19, 2019) https://www.washingtonpost.com/climate-environment/2019/08/19/cyanide-steel-plant-trickled-into-lake-michigan-days-before-public-was-notified/ (linking the death of thousands of fish to a spill of cyanide and ammonia into the Little Calumet River); Nick Thorpe, *Cyanide spill floods into Danube*, THE GUARDIAN (February 13, 2000) available at https://www.theguardian.com/world/2000/feb/14/1 (describing massive fish die-off from cyanide spill in River Tisza).

Exposure to sublethal concentrations of cyanide can affect the growth and metabolic rate of fish, and lead to tissue necrosis. It can also impact migration patterns, predator avoidance, and aggressiveness, as well as impair food capture, and interrupt ion regulation and swimming ability. Eisler at 26, 27; P. Doudoroff, *Toxicity to fish of cyanides and related compounds-a*

review, U.S. Environ. Prot. Agency Rep. 600/3-76-038 (1976) at 64–82. Finally, it can impact reproduction by altering egg production, spermatogenesis, and oocyte development. *Id.*

Abiotic factors in the environment affect the toxicity of cyanide. Both high and low temperatures can increase the toxicity of cyanide in fish species, as can low dissolved oxygen and more acidic pH. Eisler at 4, 28–29; Doudoroff at 32, 41; *see also* T. G. Kovacs and G. Leduc, *Sublethal toxicity of cyanide to rainbow trout (Salmo gairdneri) at different temperatures*, 39 CAN. J. FISH. AQUAT. SCI. 1389 (1982a); T. G. Kovacs and G. Leduc, *Acute toxicity of cyanide to rainbow trout acclimated at different temperatures*, 39 CAN. J. FISH. AQUAT. SCI. 1426 (1982b). Finally, other toxics in the environment can act synergistically with cyanide with greater negative impact than would be expected based on the additive effects of the toxics. Eisler at 28. Harm from repeated exposure to cyanide can be cumulative. *See* NMFS, *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* (April 27, 2010) ("NMFS draft BiOp") at 208.

B. EPA and the Service's history of ESA consultation over Washington's water quality standards for cyanide

Ecology first submitted freshwater acute (22.0 μg/L) and chronic (5.2 μg/L) criteria and a marine acute criterion (1.0 μg/L) for cyanide in 1992. EPA approved these criteria in 1993 without ever engaging in consultation with the Services pursuant to Section 7 of the ESA.

Later in 1993, EPA promulgated the "National Toxics Rule." 57 Fed. Reg. 60848 (Dec. 22, 1992). Because Ecology had never submitted a marine chronic criterion for cyanide to EPA for approval, Washington was included in EPA's promulgation of water quality standards in the National Toxics Rule for marine chronic cyanide.

In 1997, Ecology revised and submitted to EPA water quality standards for marine waters *inside* Puget Sound (2.8 μg/L acute and 9.1 μg/L chronic) that are considerably less stringent than EPA's 304(a) recommended cyanide criteria. EPA approved the revisions conditional upon the outcome of the ESA consultations with the Services. Nearly four years later, EPA initiated consultation with the Services regarding EPA's 1998 approval of Washington's marine inside-Puget Sound cyanide criteria. Another year later, in 2002, EPA Region 10 transmitted a biological assessment to the Services regarding its 1998 conditional approval of Washington's marine inside-Puget Sound (acute and chronic) criteria for cyanide. EPA asserted that the site-specific Puget Sound cyanide criteria were not likely to adversely affect ESA-listed fish and bird species, but that they may be likely to adversely affect the humpback whale, Steller sea lion, and leatherback sea turtle.

In 2003, Ecology submitted to EPA numeric chronic criteria for marine cyanide identical to the one set forth in the National Toxics Rule for the waters *outside* of Puget Sound. In response, EPA indicated that it was engaged with the Services on a Section 7 consultation on nationwide CWA Section 304(a) guidance values for freshwater and marine chronic and acute criteria. On May 23, 2007, EPA approved the Washington water quality standards for chronic

marine cyanide, conditioned on its ESA Section 7 consultation, and specifically verified that it was relying on the nationwide consultation to satisfy the agency's duty to consult and ensure against jeopardy and adverse modification pursuant to Section 7(a)(2).

EPA then submitted biological evaluations to the Services and asked that the Services consult on EPA's approval of water quality standards for states and tribes that adopted standards consistent with or more stringent than the nationally recommended 304(a) aquatic life criteria. Pursuant to this approach, Washington's freshwater and marine acute and chronic water quality criteria for cyanide, except for criteria for Puget Sound, would have been covered by the nationwide consultation because they mirror the EPA Section 304(a) recommended criteria. Those criteria are listed in Table 1:

Table 1. Cyanide 304(a) Aquatic Life Criteria (in µg/L of free cyanide [EPA 1985])	Criterion Maximum Concentration	Criterion Continuous Concentration
Freshwater	22.36	5.221
Saltwater	1.015	1.015

Washington's marine acute and chronic criteria for Puget Sound, however, would not be covered by the national consultation because they are less protective than the EPA recommended criteria. *See* WAC 173-201A-240mm (setting criteria of 9.1 µg/L and 2.8 µg/L for acute and chronic exposure respectively for marine waters within Puget Sound).

As part of this national consultation, FWS produced a draft Biological Opinion (BiOp) on January 15, 2010, and NMFS produced a draft BiOp on April 27, 2010. Specifically, NMFS found that the Washington criteria for cyanide "would significantly reduce the absolute numbers of green sturgeon, shortnose sturgeon, Chinook salmon, chum salmon, sockeye salmon, coho salmon, and steelhead." NMFS draft BiOp at 262. Further, NMFS advised EPA that "EPA's approval of state water quality standards for cyanide is *likely to destroy or adversely modify designated critical habitat* for the following species: Southern resident killer whale, California coastal Chinook salmon, Central Valley spring-run Chinook salmon, Lower Columbia River Chinook salmon, Upper Columbia River spring-run Chinook salmon, Puget Sound Chinook salmon, Sacramento River winter-run Chinook salmon, Snake River fall-run Chinook salmon, Snake River spring/summer-run Chinook salmon, Upper Willamette River Chinook salmon, Columbia River chum salmon, Hood Canal summer-run chum salmon, Central California Coast coho salmon, Southern Oregon and Northern California Coast coho salmon, Oregon Coast coho salmon, southern green sturgeon, Lake Ozette sockeye salmon, Snake River sockeye salmon, Central California Coast steelhead, California Central Valley steelhead, Lower Columbia River steelhead, Middle Columbia River steelhead, Northern California steelhead, Snake River steelhead, South-Central California Coast steelhead, Southern California coast steelhead, Upper Columbia river steelhead, and Upper Willamette River steelhead." *Id.* at 280 (emphasis added).

FWS similarly found that the "EPA's continuing approval of state water quality standards that rely on their nationally recommended criteria for cyanide, and cumulative effects," would "likely to jeopardize the continued existence of . . . the bull trout," among other species. FWS, *DRAFT Biological Opinion on EPA's Proposed Program of Continuing Approval or*

Promulgation of New Cyanide Criteria in State and Tribal Water Quality Standards (January 15, 2010) ("FWS Draft BiOp") at 298. Further, FWS stated that "EPA's continuing approval of state water quality standards that rely on their nationally recommended criteria for cyanide . . . is likely to result in the destruction or adverse modification of critical habitat of . . . bull trout," among other species. *Id.* 300.

Both of the Services concluded that EPA's proposed approval of (and Washington's actual equivalent) water quality criteria for cyanide were likely to jeopardize numerous listed species and adversely modify the critical habitat of many more.

However, rather than work with the Services to develop adequately protective criteria for cyanide that would avoid jeopardizing the continued existence of ESA-listed species or the adverse modification of their critical habitat, EPA withdrew from its national consultation on May 4, 2016. Following its withdrawal, EPA has not attempted to complete consultation on any of Washington's water quality standards and appears to have abandoned the effort.

ESA VIOLATIONS

A. EPA has failed to ensure its approval of Washington's cyanide water quality criteria would not jeopardize listed species or adversely modify their critical habitat.

EPA is in violation of its duty, imposed by Section 7 of the ESA, to ensure that its approval of Washington's cyanide water quality criteria is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of the designated critical habitat of such species. 16 U.S.C. § 1536(a)(2). Compliance with this substantive "no jeopardy" mandate can be met only after consultation with the Services, which EPA has either failed to complete or abandoned. As a result, EPA is in ongoing violation of Section 7(a)(2) of the ESA.

B. EPA and NMFS have failed to reinitiate consultation following the designation of critical habitat.

In violation of Section 7(a)(2), 16 U.S.C. § 1536(a)(2), and its implementing regulations, 50 C.F.R. § 402.16, EPA and NMFS are in violation of the ESA for failing to reinitiate consultation following the designation of critical habitat for lower Columbia River coho salmon, Puget Sound steelhead, and Southern Resident killer whales.

On February 24, 2016, NMFS issued a final rule designating critical habitat for lower Columbia River coho salmon (*Oncorhynchus kisutch*) and Puget Sound steelhead (*Oncorhynchus mykiss*). 81 Fed. Reg. 9252 (Feb. 24, 2016) *codified* at 50 C.F.R. § 226.212. When doing so, NMFS specifically noted that EPA's approval of water quality standards is the type of activity that may affect designated critical habitat and therefore subject to the requirements of Section 7 of the ESA. *Id.*

NMFS also issued a final rule revising the critical habitat designation for the Southern Resident killer whale distinct population segment on August 2, 2021, in part to ensure sufficient

water quality to support the growth and development of individual killer whales. 86 Fed. Reg. 41,668, 41,679–80 (Aug. 2, 2021). When doing so, NMFS specifically noted that "Southern Resident killer whales are highly susceptible to biomagnification of pollutants, such that chemical pollution is considered one of the prime impediments to their recovery." *Id.* at 41,680. NMFS also noted that the whale's survival and recovery required abundant Chinook salmon—their preferred food source, which is also adversely impacted by aquatic cyanide. *Id.* As a result, NMFS found that human activities "that could increase water contamination and/or chemical exposure," including from point sources pollution in the Coastal Washington area, were "activities of primary concern because of their potential effects … and that should be considered in accordance with section 7…." *Id.* at 41,683.

Both NMFS and EPA are required by law to reinitiate ESA Section 7 consultation "[i]f a new species is listed or critical habitat designated that may be affected by the identified action." 50 C.F.R. § 402.16(a)(4); *Salmon Spawning & Recovery Alliance*, 545 F.3d at 1229 (9th Cir. 2008) (holding that the duty to reinitiate consultation lies with both the action agency and the consulting agency). The agencies' failure to do so following these recent critical habitat designations violates the ESA and its implementing regulations.

C. EPA, NMFS, and FWS have failed to reinitiate consultation in light of the new information regarding the potential impact Washington's cyanide water quality criteria may have on listed species.

New evidence since EPA withdrew from its national consultation with the Services on cyanide establishes that the species NMFS and FWS identified as being negatively impacted by Washington's cyanide criteria years ago continue to decline. The currently precipitously small population sizes for these species amplifies the harmful effects that aquatic cyanide has on the species' remaining populations and critical habitat. As a result of this new information, EPA, NMFS, and FWS are obligated to reinitiate consultation and their failure to do so violates the ESA and its implementing regulations. *See* 50 C.F.R. § 402.16(a)(2).

For example, Puget Sound Chinook salmon continue to be in significant decline and are today at greater risk of extinction than when the species was first listed, and when Washington first proposed its current cyanide criteria. The 2021 total Puget Sound Chinook run size (hatchery and wild, not including spring Chinook) is estimated to be down 11 percent from last year's forecast of 233,000 fish and two percent below the recent 10-year average. Further—and far worse—the most recent 10-year average for wild Puget Sound Chinook is an astounding 24 percent below the 10-year average recorded for Puget Sound Chinook in 1999 when the species was listed under the ESA, less than two years after Washington first submitted its current cyanide criteria for Puget Sound. Washington Department of Fish and Wildlife, Chinook Historical Run Size—Puget Sound Graph, https://wdfw.wa.gov/fishing/management/puget-sound-management-plan#status (last visited December 20, 2021). "Despite being listed under the [ESA] in 1999, wild Puget Sound Chinook stocks have continued to fall in the past two decades. This continued decline has become even more pronounced in recent years, affecting the entire Puget Sound ecosystem, as well as local economies and fishing opportunities." Washington Department of Fish and Wildlife, ESA coverage for Puget Sound fisheries, *available at* https://wdfw.wa.gov/fishing/management/puget-sound-management-plan (last visited December

9, 2021). Puget Sound Chinook are in crisis with a future status predicted by the Washington Department of Fish and Wildlife to be less than 25 percent of the recovery goal. Washington Department of Fish and Wildlife, *Status and Trends Analysis of Adult Abundance Data, Prepared in Support of Governor's Salmon Recovery Office 2020 State of Salmon in Watersheds Report* (January 31, 2021) at 16. Similarly, Lake Ozette Sockeye, Snake River spring/summer Chinook, Puget Sound steelhead, and Upper Columbia spring Chinook, are in crisis, with populations projected to reach less than 25 percent of the recovery goal in the near future. *Id.*

Columbia River chum salmon similarly remain in dire straits. Most of the populations of this evolutionary significant unit are at very low abundances and high to very high risk. *See* NMFS, *2016 5-Year Review: Summary & Evaluation of Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, Lower Columbia River Coho Salmon, Lower Columbia River Steelhead* (May 2016) at 22.

Based on available data, bull trout populations are also decreasing. FWS, *Bull Trout (Salvenlinus confluentus) 5- Year Review: Summary and Evaluation* (2008) at 44 (identifying a "decreasing trend" in bull trout abundance). Additionally, since their listing in 1999, climate change is now recognized as a threat to bull trout who rely on cold and clean water for survival. *See* J. S. Drake, *Protecting ESA-Listed Bull Trout in the Face of Climate Change: Can the Endangered Species Act and the Clean Water Act Do Their Part?* 42 PUB. LAND & RESOURCES L. REV. 95 (2020).

Southern Resident killer whales continue to be significantly affected. Today there are only 73 Southern Resident killer whales, down from 78 individuals in 2016 when NMFS completed its last five-year review, and 97 individuals in 1996, the year before Washington proposed its current cyanide criteria. NOAA, Southern Resident Killer Whale (*Orcinus orca*) https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/southern-resident-killer-whale-orcinus-orca (last visited December 9, 2021) (identifying Southern Resident killer whale abundance for 1996); NMFS, *Southern Resident Killer Whales (Orcinus orca) 5-Year Review: Summary and Evaluation* (December 2016) at 16 (identifying abundance for fall 2016); Orca Network, Births and Deaths https://www.orcanetwork.org/Main/index.php?categories_file=Births%20and%20Deaths (last visited December 9, 2021) (reporting Southern Resident killer whale abundance as 73 individuals as of September 20, 2021). As the primary food source for Southern Resident killer whales, the continued decline in Chinook populations contributes to and exacerbates the whale's continued decline. Lacy, R.C., Williams, R., Ashe, E. *et al. Evaluating Anthropogenic Threats to Endangered Killer Whales to Inform Effective Recovery Plans*, 7 *Sci Rep* 14119 (2017). *available at* https://doi.org/10.1038/s41598-017-14471-0.

These species' continued declines make them more vulnerable to the toxic effects of aquatic cyanide. Small populations are disproportionately more likely to be extirpated than large populations because environmental and biological forces function differently in smaller populations and these forces can result in feedback loops that drive small populations towards extinction. *See* Barry W. Brook, Navjot S. Sodhi, and Corey J.A. Bradshaw, *Synergies among extinction drivers under global change*, 23 Trends in Ecology and Evolutionary Biology 453, 455 (2008). The factors driving these "extinction vortices" include increased vulnerability to

stochastic impacts, Allee effects on population dynamics, genetic deterioration from inbreeding and genetic drift, increased vulnerability to environmental stressors, such as pollution, and synergistic impacts. *See* Michael Gilpin and Michael E. Soulé, *Minimum Viable Populations: Processes of Species Extinction* in CONSERVATION BIOLOGY: THE SCIENCE OF SCARCITY AND DIVERSITY 13-34 (M. E. Soulé ed., 1986; Brook et al. 455 (2008); Anna-Marie Winter, Andries Richter, and Anne Marie Eikeset, *Implications of Allee effects for fisheries management in a changing climate: evidence from Atlantic cod*, 30 Ecological Applications (2020); Priyanga Amarasekare, *Allee Effects in Metapopulation Dynamics*, 152 The American Naturalist 299 (1998); Marty Kartos, et. al, *The crucial role of genome-wide genetic variation in conservation*, 118 Proc. Nat. Acad. Sci. (2021). Thus, because of the continued declines and increasingly low abundances of the above-mentioned species, these species are at disproportionately greater risk of extinction than when EPA and the Services last consulted on Washington's cyanide water quality criteria.

Accelerating climate change impacts are also likely to amplify toxicity of cyanide on fish. *See, e.g*., Diana Madeira et al., *Synergistic Effects of Ocean Warming and Cyanide Poisoning in an Ornamental Tropical Reef Fish*, 7 FRONTIERS IN MARINE SCIENCE (2020). As a result, standards promulgated in 1993 may not be adequately protective today.

Both NMFS and EPA are required by law to reinitiate ESA Section 7 consultation "[i]f new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered." 50 C.F.R. § 402.16(a)(2); *Salmon Spawning & Recovery Alliance* 545 F.3d at 1229. Their failure to do so following new information about cyanide's impacts and the drastically reduced population sizes of these species violates the ESA.

D. Ecology's promulgation of inadequate water quality criteria for cyanide results in unlawful take of threatened and endangered species

Ecology implements the CWA in Washington State, RCW 90.48.260, and promulgated inadequate water quality criteria for cyanide that result in the take of listed species. WAC 173-201A-240. Because Ecology continues to rely on inadequate water quality criteria for cyanide that harm, harass, and/or kill members of listed species, the agency has and continues to violate ESA Section 9's prohibition against take.

Under the CWA, water quality standards are the regulatory basis for establishing water quality-based controls for point sources of pollution. 33 U.S.C. §§ 1311, 1316. Water quality standards are also used to establish measures to control nonpoint source pollution. *See, e.g.*, 33 U.S.C. §§ 1288, 1313, 1329. Additionally, these standards provide the foundation for identifying impaired waterbodies for listing and development of total maximum daily loads established to clean up contributing pollution sources. *See* 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.2(j). Washington State's current freshwater cyanide criteria are 22 µg/L for acute exposure and 5.2 µg/L for chronic exposure. WAC 173-201A-240. Its current marine water criteria are 1.0 µg/L for acute and chronic exposure outside of Puget Sound, and 9.1 µg/L and 2.8 µg/L for acute and chronic exposure respectively for marine waters within Puget Sound. *Id.*

Washington State's current freshwater cyanide criteria clearly result in the take of listed species. The acute freshwater exposure level has the potential to kill members of Pacific salmonid species and bull trout. NMFS BiOp at 267; FWS Draft BiOp at 222. The acute exposure level is expected to kill up to 99.9 percent of juvenile bull trout, as well as individuals at other life stages. *Id*. Further, in winter, the acute level of cyanide has the potential to cause 1 percent mortality for steelhead and even higher rates of mortality in other species. *Id.* at 267.

The chronic exposure level also has the potential to kill or injure juvenile salmonids and bull trout, and reduce egg hatching. According to FWS, the chronic level has the potential to kill up to 90 percent of individual bull trout in their first year and cause up to an 87 percent reduction in hatched eggs for this species. FWS Draft BiOp 220. According to NMFS, this level has the potential to kill up to 79 percent of juvenile coho and Chinook and reduce hatched eggs in these species by 45 percent. NMFS Draft BiOP at 252. Similarly, Washington's freshwater chronic cyanide criterion has the potential to kill up to 69 percent of juvenile chum and sockeye salmon and reduce egg hatch by up to 37 percent. *Id.* For steelhead, the chronic cyanide level has the potential to kill 61 percent of juvenile steelhead and reduce egg hatch by up to 33 percent. *Id.*

In addition to killing juvenile fish and destroying eggs, the freshwater chronic and acute cyanide criteria potentially harm the young of the year and the juveniles that do survive their exposure to these levels of cyanide. NMFS Draft BiOP at 252; FWS Draft BiOp at 220. This harm is the result of cyanide exposure causing reduced growth rates and increased vulnerability to temperature, flow, and intraspecific and cross-specific competition for resources such as food and cover. NMFS Draft BiOP at 252; FWS Draft BiOp at 221. It can result in delayed reproductive maturity and productivity in fish exposed to these levels of cyanide. NMFS Draft BiOP at 252, 254; FWS Draft BiOp at 220. Finally, stressors such as pathogens, salinity, pH, temperature, the concentration of dissolved oxygen, or exposure to other toxins are likely to increase a fish's sensitivity to cyanide. NMFS Draft BiOp at 253; FWS Draft BiOp at 220.

The impact of these cyanide levels on the mortality and fitness of salmonid species also harms the Southern Resident killer whale. Chinook salmon make up the bulk of the Southern Resident killer whale's diet. NMFS Draft BiOp at 255. The ongoing reduction in numbers of this primary prey species from exposure to cyanide has the potential to significantly reduce the "absolute numbers of southern resident killer whales by reducing the absolute numbers of their primary prey." *Id*. at 256.

By relying on an aquatic life water quality standard for cyanide that exceeds chronic and acute levels protective of numerous threatened and endangered species, Ecology allows permittees under its jurisdiction operating pursuant to permits issued by Ecology to discharge cyanide at levels that almost certainly result in mortality and injury to listed species, as well as permitting "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering." 50 C.F.R. § 222.102 (NMFS regulation defining "harm"); *see also* C.F.R. § 17.3 (FWS regulation providing essentially the same definition for "harm").

As a result, Ecology has, and continues to, violate the ESA Section 9 prohibition against the take of a member of an endangered or threatened species. 16 U.S.C. § 1532(19); *Strahan v. Coxe*, 127 F.3d 155, 163 (1st Cir. 1997), *cert. denied*, 525 U.S. 830 (1998) (holding state liable for take of endangered right whales by virtue of its licensing of private commercial fishing with equipment that caused whale entanglements and deaths); *Loggerhead Turtle v. Cty. Council of Volusia Cty.*, 148 F.3d 1231, 1251 (11th Cir. 1998), *cert. denied*, 526 U.S. 1081 (1999) (holding Volusia County subject to the take prohibition in the ESA for impacts of artificial beach lighting on loggerhead sea turtles).

Conclusion

The Center intends to sue you, Ecology, the EPA, FWS, and NMFS, for these violations of the ESA. This letter is provided pursuant to the 60-day notice requirement of the citizen suit provision of the ESA. 16 U.S.C.§ 1540(g). If you do not take action within 60 days to remedy these violations of the ESA, the Center will be forced to file suit.

Sincerely,

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