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UNITED STATES DISTRICT COURT

DISTRICT OF OREGON

PORTLAND DIVISION

AMERICAN RIVERS, PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS, INSTITUTE FOR FISHERIES RESOURCES, SIERRA CLUB, IDAHO RIVERS UNITED, NORTHWEST SPORTFISHING INDUSTRY ASSOCIATION, NW ENERGY COALITION, NATIONAL WILDLIFE FEDERATION, COLUMBIA RIVERKEEPER, and IDAHO CONSERVATION LEAGUE,

Plaintiffs,

and

STATE OF OREGON,

Intervenor-Plaintiff,

v.

Civ. No. 01-0640-SI

[PROPOSED] EIGHTH SUPPLEMENTAL COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

NATIONAL MARINE FISHERIES SERVICE, U.S. ARMY CORPS OF ENGINEERS, and U.S. BUREAU OF RECLAMATION,

Defendants,

and

NORTHWEST IRRIGATION UTILITIES, PUBLIC POWER COUNCIL, COLUMBIA-SNAKE RIVER IRRIGATORS ASSOCIATION, WASHINGTON STATE FARM BUREAU FEDERATION, FRANKLIN COUNTY FARM BUREAU FEDERATION, GRANT COUNTY FARM BUREAU FEDERATION, NORTHWEST RIVER PARTNERS, CLARKSTON GOLF & COUNTRY CLUB, CONFEDERATED SALISH AND KOOTENAI TRIBES, STATE OF MONTANA, INLAND PORTS AND NAVIGATION GROUP, KOOTENAI TRIBE OF IDAHO, and STATE OF WASHINGTON,

Intervenor-Defendants.

INTRODUCTION

1. The Columbia River Basin is about the size of Texas and was once the most productive wild salmon habitat on the planet. Today, the remaining salmon from the basin are essential to a network of life that spans small fishing-dependent communities in Idaho, Native American Tribes throughout the basin for whom salmon are a way of life, sport and commercial fishing businesses as far north as Alaska, and the coastal waters of Washington State where Southern Resident killer whales feed. But the once mighty salmon runs of the Columbia Basin now return at a tiny fraction of their historic numbers. They and the network of life they have supported for so long are on the brink of collapse. The situation is dire: 13 populations of salmon and steelhead are listed as threatened or endangered with extinction. Many other populations are already extinct. And the salmon-eating Southern Resident killer whales are so malnourished that most calves die before birth.

2. The Snake River, the Columbia's largest tributary, once produced fully half the

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basin's Chinook salmon along with large numbers of other salmon and steelhead species. Snake River coho became extinct in the 1980s, and all of the remaining Snake River species are not far behind. In 2019, only 14 natural origin Snake River sockeye made it home to spawn in Idaho's Redfish Lake.

3. For over two decades, plaintiffs, National Wildlife Federation *et al*. ("NWF"), have said that the defendant federal agencies' management of a series of hydroelectric dams on the Columbia and Snake Rivers directly place salmon and steelhead in jeopardy of extinction. And the Court has agreed, rejecting, one after another, a half dozen biological opinions for dam operations, most recently in an extensive decision in 2016. That opinion made clear, and not for the first time, the urgent need for a new direction in managing these dams. To address that need, the Court afforded the defendant agencies all the time they sought to prepare a new plan that would comply with the law. They have now concluded their work—a full year early, spurred by an order of President Trump. Remarkably, they have decided once again that major changes to dam operations are too costly even though they recognize that one of those changes, bypassing four dams on the lower Snake River, would provide the most significant survival benefits for Snake River salmon and steelhead of any option they consider. To reach their "stay-the-course" conclusion, these agencies misconstrue laws written to protect the environment, provide skewed and incomplete analyses, and fail to actually account for critical and credible scientific information, especially regarding the advancing effects of climate change. In the face of this failure, NWF must once again ask the Court to review and set aside the defendant agencies' actions.

SUPPLEMENTAL COMPLAINT AND AGENCY ACTIONS

4. Pursuant to Fed. R. Civ. P. 15(d) and LR 15.1(b) and (c), NWF hereby supplements its Seventh Supplemental Complaint for Declaratory and Injunctive Relief, filed July 9, 2014, with this Eighth Supplemental Complaint in order to address new circumstances and subsequent actions by defendants, the National Marine Fisheries Service ("NMFS" or

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"NOAA"), the U.S. Bureau of Reclamation ("BOR" or "Bureau"), and the U.S. Army Corps of Engineers (the "Corps") (the Corps and BOR are referred to together herein as the "Action Agencies").

5. Specifically, on July 24, 2020, NOAA issued its Endangered Species Act—Section 7(a)(2) Biological Opinion for Continued Operation and Maintenance of the Federal Columbia River Power System (the "2020 BiOp") in response to this Court's Order of Remand, *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Svc.,* No. 01-640-SI, Order of Remand (D. Or. July 6, 2016) (ECF No. 2089) (as modified by ECF No. 2288 (Apr. 17, 2018)) (extending the date for the BiOp to March 26, 2021) (hereinafter "*NWF v. NMFS*"), and a Presidential Memorandum dated October 19, 2018 (shortening by a year the due dates the Court set), *see* 2020 BiOp at 95 & n.16. In July 2020, and also in response to the Court's Order of Remand and the Presidential Memorandum, the Corps and BOR issued a Final Environmental Impact Statement for Columbia River System Operations (the "CRSO FEIS" or "FEIS"). Thereafter, the Corps, BOR, and the Bonneville Power Administration ("BPA") issued a Joint Record of Decision for Columbia River System Operations (the "2020 ROD"), dated September 28, 2020.[1]

6. For the reasons set forth below, this Eighth Supplemental Complaint seeks review of the 2020 BiOp, the CRSO FEIS, and the 2020 ROD for violations of the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531 *et seq.*, the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4321 *et seq.*, and the Administrative Procedure Act ("APA"), 5 U.S.C. §§ 551 *et seq*. NWF sets out below information about the status of the species at issue, *see infra* at ¶¶ 15–41; a summary of the law, *see infra* at ¶¶ 42–63; and a description of prior proceedings, *see infra* at ¶¶ 64–77. We then summarize the ways in which the 2020 BiOp, CRSO FEIS, and 2020 ROD are arbitrary, capricious and contrary to law. *See infra* at ¶¶ 79–109 (addressing flaws in the 2020

[1] BPA is not named as a defendant in this supplemental complaint because jurisdiction to review final action by BPA lies in the Ninth Circuit. NWF has filed there a petition for review of BPA's decision as reflected in the 2020 ROD. *See NWF v. BPA*, Ninth Cir. No. 20-73761 (filed Dec. 23, 2020). NWF will seek to have proceedings on that petition stayed pending the outcome of proceedings on this proposed supplemental complaint.

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BiOp and 2020 ROD), ¶¶ 110–151 (addressing flaws in the CRSO FEIS and 2020 ROD).[2]

JURISDICTION AND VENUE

7. This Court has jurisdiction over this action under 5 U.S.C. §§ 701–706 (Administrative Procedure Act); 28 U.S.C. § 1331 (federal question), § 2201 (declaratory judgment), and § 2202 (injunctive relief); and the ESA, 16 U.S.C. § 1540(g). As required by the ESA, 16 U.S.C. § 1540(g), NWF provided 60 days' notice of its intent to sue the Corps and BOR on October 23, 2020.

8. Venue is properly vested in this Court under 28 U.S.C. § 1391(e) because members of the plaintiff organizations reside in this district and these members and organizations do business here. In addition, a substantial part of the events or omissions giving rise to the claims in this case occurred in this district, and the defendants maintain offices in the district.

PARTIES

9. The plaintiffs in this action are:

A. American Rivers, a national conservation organization with its principal place of business in Washington, D.C. and Pacific Northwest offices in Bellingham, Seattle, and Ellensburg, Washington, and Portland, Oregon. American Rivers and its over 275,000 members, supporters, and volunteers are devoted to protecting wild rivers, restoring damaged rivers, and conserving clean water for people and nature. American Rivers also is active in pursuing environmental safeguards in national hydropower policy.

B. Pacific Coast Federation of Fishermen's Associations ("PCFFA"), the largest organization of commercial fishermen on the west coast, with member organizations from San Diego to Alaska representing thousands of men and women in the Pacific fleet. Many of PCFFA's members are salmon fishermen whose livelihoods depend upon salmon as a natural

[2] In accordance with Local Rule 15(c), NWF has not incorporated any material from its prior supplemental complaint by reference. The proposed changes from the prior complaint are all made to address new actions by NOAA, the Corps, and BOR in response to the Court's decision addressing NWF's prior supplemental complaint. These changes are set out in the paragraphs identified in the text above.

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resource and who, until recent fisheries closures, generated hundreds of millions of dollars in personal income within the region. PCFFA has its main office in Sausalito, California, and a Northwest regional office in Eugene, Oregon.

C. Institute for Fisheries Resources ("IFR"), a nonprofit corporation that constitutes the conservation arm of PCFFA and shares PCFFA's offices in Sausalito, California, and Eugene, Oregon.

D. Sierra Club, a national environmental organization founded in 1892 and devoted to the study and protection of the earth's scenic and ecological resources—mountains, wetlands, woodlands, wild shores and rivers, deserts, plains, and their wild flora and fauna. Sierra Club has some 60 chapters in the United States and Canada, including chapters in Washington, Oregon, and Idaho, and a principal place of business in San Francisco, California.

E. Idaho Rivers United ("IRU"), a nonprofit corporation organized under the laws of the State of Idaho with a principal place of business in Boise, Idaho. IRU and its approximately 3,500 members throughout the state of Idaho are dedicated to the protection and restoration of Idaho's rivers and river resources.

F. Northwest Sportfishing Industry Association ("NSIA"), an organization dedicated to restoring and protecting the region's rivers, lakes, and streams, keeping them healthy and full of fish. NSIA is a trade association of several hundred sporting goods manufacturers, wholesalers, retailers, marinas, guides, and charter boat operators. About 60% of the member businesses are located in Washington, 30% in Oregon, and the remainder are national organizations. NSIA's principal place of business is Oregon City, Oregon.

G. NW Energy Coalition ("NWEC"), an alliance of over 95 environmental, civic, and human service organizations, progressive utilities, and businesses from Oregon, Washington, Idaho, Montana, Alaska, and British Columbia. NWEC promotes energy conservation and renewable energy resources, consumer and low-income protection, and fish and wildlife restoration on the Columbia and Snake Rivers. NWEC's headquarters are located in Seattle, Washington.

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H. National Wildlife Federation ("NWF"), the nation's largest conservation advocacy and education organization. Founded in 1936, NWF is a non-profit organization with its headquarters in Reston, Virginia, and nine regional offices, including the Western Natural Resource Center in Seattle, Washington. NWF's mission is to educate, inspire, and assist individuals and organizations of diverse cultures to conserve wildlife and other natural resources and to protect the Earth's environment in order to achieve a peaceful, equitable, and sustainable future. As part of this mission, NWF and its over 4 million members and supporters are dedicated to protecting and restoring the Northwest's salmon runs, including those in the Columbia and Snake Rivers.

I. Columbia Riverkeeper, a non-profit public interest organization, organized under the laws of the State of Washington, with a principal place of business in White Salmon, Washington, and an office in Hood River, Oregon. Columbia Riverkeeper, and its approximately 16,000 members and supporters, works to restore and protect the water quality of the Columbia River and all life connected to it from its headwaters to the Pacific Ocean.

J. Idaho Conservation League ("ICL"), a nonprofit corporation organized and existing under the laws of the State of Idaho and dedicated to ensuring adequate protections for clean water and air, healthy families, and Idaho's unique way of life.

10. Plaintiffs and their members use the Columbia River and its tributaries throughout Idaho, Oregon, and Washington for recreational, scientific, aesthetic, and commercial purposes. Plaintiffs and their members derive or, but for the precarious and declining status of salmon and steelhead in the Columbia and Snake River Basins, and of the Southern Resident killer whales that depend on them, would derive recreational, scientific, aesthetic, and commercial benefits from the existence of these species in the wild through wildlife observation, study and photography, and recreational and commercial fishing within the Columbia River Basin and the Pacific Ocean. The past, present, and future enjoyment of these benefits by plaintiffs and their members has been, is being, and will continue to be irreparably harmed by the defendant agencies' disregard of their statutory duties, as described below, and by the unlawful injuries

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imposed on salmon, steelhead, Southern Resident killer whales, and the environment by these actions.

11. The above-described aesthetic, conservation, recreational, commercial, scientific, and procedural interests of plaintiffs and their respective members have been, are being, and, unless the Court grants the relief prayed for herein, will continue to be adversely affected and irreparably injured by the defendant agencies' failure to comply with the ESA and NEPA as described below. Plaintiffs have no adequate remedy at law.

12. Defendant National Marine Fisheries Service, also known as NOAA (National Oceanic and Atmospheric Administration), is an agency of the United States Department of Commerce responsible for administering the provisions of the Endangered Species Act with regard to threatened and endangered marine species, including the species of threatened and endangered salmon and steelhead that inhabit the Columbia River Basin and the endangered population of Southern Resident killer whales that inhabits the coastal and offshore waters of the Pacific Northwest.

13. Defendant United States Army Corps of Engineers is an agency of the United States Army and the Department of the Defense that constructs and operates federal engineering projects throughout the United States, primarily in rivers, coasts, and wetlands. The Corps has primary management authority over the operation and maintenance of several dams, reservoirs, and associated facilities on the Columbia and Snake Rivers that are at issue in this case.

14. Defendant United States Bureau of Reclamation is an agency of the United States Department of the Interior that constructs and operates federal water projects throughout the United States. BOR has primary management authority over several projects on the Snake and Columbia Rivers that are at issue in this action.

THE STATUS OF SALMON AND STEELHEAD

A. Overview of Threats to Salmon and Steelhead

15. Since completion of the Columbia River System ("CRS") hydroelectric dams in

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1975, and despite considerable effort and expenditure, nearly all salmon and steelhead in the Columbia Basin have declined to dangerous levels. Many salmon and steelhead populations are now facing imminent extinction, and others are already extirpated. Nowhere is this decline more apparent than in the Columbia River's largest and once most productive tributary, the Snake River. Snake River out-migrating juveniles and returning adult salmon must navigate past eight hydroelectric dams, and as a result now struggle to survive despite vast areas of high-quality spawning and nursery habitat beyond the dams. The Snake River Basin once sustained fully half of the Chinook and steelhead in the entire Columbia Basin. Today it presents by far the best opportunity to halt the decline of salmon and steelhead to extinction and to begin rebuilding these species to a sustainable abundance. Unfortunately, only 1–2% of historic wild fish numbers return to the Snake each year and all of its remaining salmon and steelhead populations are listed for protection under the ESA.[3]

16. Development of the CRS dams and reservoirs transformed a free-flowing river system that was once essential migratory habitat for Columbia Basin salmon and steelhead (and is today designated critical habitat for these species) into a series of dams and slack-water reservoirs. The Columbia River ecosystem, prior to development, was a network of complex interconnected habitats that had been created, periodically altered, and maintained by natural physical processes. Passage to and from natal habitats for anadromous fish was unimpeded, affected only by the variability of natural conditions in which these species evolved. Today, the developed Columbia and Snake Rivers, and the remaining ecosystem, bear little resemblance to a natural river. Salmon and steelhead migrating both down and up these rivers face obstacles of reduced water velocity, dangerously hot water in reservoirs, increased predation, and migration

[3] The details regarding Snake and Columbia River salmon and steelhead populations and the Southern Resident killer whales in this and the following sections are drawn from a number of sources including the work of scientists, federal agency reports, peer-reviewed scientific literature, and multi-stakeholder or expert assessments. NWF has not included specific citations to these source materials in this supplemental complaint but these sources are publicly available or NWF can provide them upon request.

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delays, as well as mortality, injury, and stress during dam passage. In many cases, additional stresses are introduced by handling and the collection of juveniles for transportation around the dams. All of these factors, directly and indirectly, very substantially reduce juvenile survival rates during seaward migration, and salmon and steelhead populations also experience significant delayed mortality in the marine environment as a result of their out-migration experience.

17. Most of the same factors that harm and kill seaward migrating juvenile salmon also directly and indirectly reduce the survival and ultimate reproductive success of mature, adult salmon returning from the ocean to spawn. The CRS dams and reservoirs significantly increase water temperatures to levels that delay and prevent upstream migration, decrease fitness, and sometimes outright kill returning adults, particularly summer-migrating adult salmon such as endangered Snake River sockeye.

18. Since the 1980s, federal agencies and others have attempted a number of salmon recovery strategies in various combinations with little or no success including: structural modifications at dams aimed at improving passage survival; extensive collection and transportation of juvenile salmon (smolt barging and trucking); improvement and restoration of spawning habitat above the dams in central Idaho, southeast Washington, and northeast Oregon; estuary habitat improvements; avian and piscivorous predator controls; modestly increased flows through the slackwater reservoirs; and incrementally increased spill over the eight mainstem lower Snake and lower Columbia River dams to aid fish passage. While some of these efforts have had some positive effect (e.g., increased voluntary spill), singly and in combination, they have not halted or reversed the continuing decline of these species towards extinction. Today, the situation these species face is more urgent and dire than ever.

B. Current Population Conditions for Snake River Salmon and Steelhead

19. The population conditions and threats to Snake River salmon and steelhead have been the subject of extensive scientific study. In 2007, NOAA's Northwest Fisheries Science Center undertook an analysis of population viability for a number of salmon and steelhead

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populations listed as threatened or endangered under the ESA, including from the interior Columbia River Basin. This analysis, prepared by a team of scientific experts called the Interior Columbia Basin Technical Recovery Team ("ICTRT"), remains one of the touchstones for establishing the degree of risk currently facing Snake River salmon and steelhead. *See, e.g.*, 2020 BiOp at 103–105 (citing ICTRT analysis and describing it as the basis for current recovery plans), 435 (same for Snake River sockeye); *see also NWF V. NMFS*, 184 F. Supp. 3d at 890–892 (citing and relying on the ICTRT analysis).[4] In this and subsequent papers, the ICTRT has found that Snake River salmon and steelhead populations currently face substantial risks to their survival.

20. For example, the ICTRT has concluded that virtually all remaining populations of Snake River spring/summer Chinook face a high level of risk to their viability and would require very substantial and sustained population growth across many populations to reach an adequate level of species security. NOAA confirmed this conclusion in its most recent status review for these species. 2020 BiOp at 107 (citing 2015 status review) ("[a]ll extant populations (except Chamberlain Creek) still face a high risk of extinction").[5]

21. The future prospects for Snake River fall Chinook are similar. As the ICTRT explained, there is only one remaining population of these fall Chinook located in the mainstem and tributaries below the Hells Canyon Complex dams. The ICTRT report also points out that the extirpated mainstem populations above the Hells Canyon Complex dams were relatively large and productive, dominating production for this species. In addition, over 100 miles of

[4] The work of the ICTRT addressed seven Snake and upper Columbia River salmon and steelhead population units listed for protection under the ESA, all of which also are addressed in the 2020 BiOp and CRSO FEIS. This supplemental complaint focuses primarily on Snake River salmon and steelhead but many, if not all, of the flaws in the 2020 BiOp, CRSO FEIS and 2020 ROD apply equally to upper Columbia species. Similarly, many of the actions that would benefit Snake River species also will benefit upper Columbia salmon and steelhead.

[5] The Chamberlain Creek population is not actually viable. The 2020 BiOp describes it as "maintained" which means it "support[s] ecological functions and preserve[s] options for recovery of the ESU." 2020 BiOp at 107 (Table 2.2-3 notes).

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Snake River fall Chinook spawning habitat was lost for these fish when it was inundated by the construction of the four lower Snake River dams, limiting its remaining spawning habitat to a small fraction of its historic scope. Because this Snake River fall Chinook currently consists of only one population, the ICTRT viability criteria would require it to be very secure, with a 100-year viability risk of 1% or less, in order to be considered viable. Reaching this level of population security would require a sustained, consistent, and very substantial improvement in survival rates for this species. The ICTRT report also notes that available data clearly indicates that the hydropower system has a major effect on the migration and rearing survival of Snake River fall Chinook.

22. Snake River sockeye face perhaps the bleakest future of all. Returns of adult sockeye to Redfish Lake in Idaho have been in the low single digits, or occasionally in the low double digits—with several years where no adults made it back to spawn at all—for most of the past two decades. For years, these fish have been sustained largely by a captive breeding and hatchery program with few natural-origin returns. In 2019, only 14 of these natural-origin fish returned, a notable decline from an already precarious existence. 2020 BiOp at 437 (Table 2.4-2). In fact, upstream adult survival through the CRS dams and reservoirs in recent years has consistently failed to meet the levels NOAA has identified as necessary to avoid jeopardy to Snake River sockeye. Recent research predicts that when the effects of the CRS dams and reservoirs on water temperatures are combined with the advancing effects of climate change, the resulting water temperatures are likely to cause the extinction of Snake River sockeye.

23. Looking to the future, there is now considerable scientific information about the kinds of population increases that would be necessary to stabilize Snake River salmon and steelhead populations and allow them to begin to increase so that they can not only persist but also return to a healthy abundance. Since 2016, for example, the Columbia Basin Partnership, a multi-stakeholder group of federal, state, tribal, and other interests, has developed and adopted abundance goals for more sustainable salmon and steelhead populations in the Columbia Basin. In the Snake Basin where 4 of the most at-risk species (all ESA-listed) originate, the high-end

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abundance target for sockeye is 9,000 wild fish annually, for wild spring/summer Chinook 127,000, and for wild steelhead 105,000. In each instance, these abundance goals are many multiples larger than current salmon and steelhead populations.

24. Further, in its most recent final Fish and Wildlife Program, the Northwest Power and Conservation Council (NPCC) reaffirmed its longstanding goal of smolt-to-adult returns (SAR) that have a sustained average of 4% (a 2–6% range) for Snake River spring/summer Chinook and other species. SARs calculate a long-term population trend based on empirical evidence of the percentage of smolts that return to spawn as adults. SARs reflect the actual survival experience of the various salmon and steelhead populations in the Columbia Basin as they are affected by factors in the life histories of each population, including outmigration flow and temperature conditions, impacts of hydrosystem passage, estuary survival, delayed mortality, ocean conditions, predation, harvest, and freshwater temperatures and flow conditions during the adult return migration.

25. As the NPCC has explained, a minimum 2% SAR is required to maintain existing populations. SARs below this level indicate ongoing population declines that will lead to extinction. SARs above 2% indicate returns that would support population stability or growth. SARs at and above 4% on a sustained basis will lead to recovery and a sustainable abundance. The Independent Scientific Advisory Board, established as an aid to the NPCC, reviewed the 2–6% SAR objective and identified extensive analyses, including from the multi-agency and expert Comparative Survival Studies (CSS), to support these goals, noting that SAR objectives provide a readily measured, first-order objective for restoring stocks.

C. Breaching the Lower Snake River Dams Would Protect Snake River Salmon and Steelhead

26. Extensive evidence indicates that breaching the four lower Snake River dams would provide more certainty of achieving the kind of long-term survival and stable, sustainable population levels described above than would any other measure or combination of measures that do not include dam breaching. For example, the best currently available scientific evidence

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indicates that salmon and steelhead populations originating above Bonneville dam and whose migration requires passing four or fewer dams generally exhibit SARs that would allow for their survival (e.g., in the Deschutes River Basin, above two CRS dams, the wild steelhead SAR is 5% (brood years 2006–2016) and in the Yakima River Basin, above four CRS dams, the wild steelhead SAR is 4% (2002–2016) and the wild Chinook SAR is 2.5% (2000–2017)). By contrast, in the Snake River Basin above eight CRS dams, all salmon and steelhead populations are facing likely extinction. The wild steelhead SAR is only 1.4% (2000–2016), and wild spring/summer Chinook SAR is only 0.7% (2000–2017)—both well under the minimum 2% necessary for these species to persist, resulting in ongoing generational declines in these Snake River species. In short, salmon populations that must pass four dams or fewer on their journey to and from the Pacific currently appear to be able to at least survive. In contrast, Snake River salmon populations that must pass eight dams on both their juvenile and adult migration cannot survive at the levels required to sustain themselves, much less achieve rebuilding goals.

27. Breaching the four lower Snake River dams was identified in both the 2000 BiOp and again in the 2020 BiOp—documents separated by 20 years—as yielding the highest survival improvements for Snake River species. That conclusion is supported by extensive evidence from a peer-reviewed, interagency process that concluded more than 20 years ago. This "Plan for Analyzing and Testing Hypotheses" (PATH) summarized the available empirical evidence at that time, retrospectively analyzed patterns of survival in the various life stages and across the life cycle, and performed prospective analyses using a wide range of assumptions. PATH analyses showed that dam breaching options were the most likely to restore Snake River salmon and steelhead under a wide range of assumptions.

28. The vast preponderance of evidence accumulated since PATH has confirmed that survival of Snake River spring/summer Chinook—in the smolt-to-adult stage, in the ocean, and across the life cycle—is lower than that of similar downriver populations that experience fewer dams. This evidence has also repeatedly demonstrated that breaching the four lower Snake River dams would substantially benefit Snake River spring/summer Chinook.

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29. There is also considerable evidence that breaching the four lower Snake River dams would substantially benefit Snake River sockeye. Adult Snake River sockeye survival during their return migration through the CRS dams, and especially through the lower Snake River dams, has been unsustainably low for many years. Recent research demonstrates that removal of the lower Snake River dams would significantly improve temperature conditions for migrating adults, even in the low flow and high temperature conditions that are expected to occur more frequently as climate change intensifies.

D. The 2020 ROD and Supporting Documents Reject Dam Breaching In Favor of Maintaining the Status Quo

30. Despite this accumulated and compelling evidence, the 2020 ROD and CRSO FEIS reject an alternative that includes removal of the lower Snake River dams, and the 2020 BiOp concludes that the preferred alternative from the FEIS, which largely continues past dam operations, will not jeopardize any of the listed species of salmon and steelhead, including those that originate in the Snake River Basin, or adversely modify or destroy any of their designated critical habitat.

31. At the same time, the 2020 BiOp candidly acknowledges that while abundance trends for these species increased modestly for a period of time through 2014, recent abundance trends for Snake River species have *not* continued to increase—as predicted in the 2008 and subsequent BiOps—but instead have *declined*. For example, the 2020 BiOp notes that:

> [t]he best scientific and commercial data available with respect to the adult abundance of [Snake River] spring/summer Chinook salmon indicate a substantial downward trend in the abundance of natural-origin spawners at the ESU level from 2014 to 2019 []. The past three years (2017 through 2019) have shown the lowest returns since 1999.

2020 BiOp at 111 (citation to table omitted). The 2020 BiOp offers a similar assessment of recent abundance trends for Snake River steelhead, Snake River fall Chinook, and Snake River sockeye. *Id*. at 306 (for Snake River steelhead, recent data indicates a "substantial downward trend in the abundance of natural-origin spawners"), 440 (same for Snake River sockeye), 544

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(same for Snake River fall Chinook).

32. The 2020 BiOp goes on to offer NOAA's view that these recent sharp declines in abundance are due to ocean conditions and possibly other factors. Nowhere, however, does NOAA acknowledge the critical and logical point that freshwater conditions, including conditions in the species' migratory habitat in the lower Snake and Columbia Rivers, must be adequate to consistently provide juvenile survival and adult return rates that afford the best possible opportunity of sustaining and improving these species' abundance over a range of ocean and other conditions that may not be so readily amendable to human influence. As the Fish Passage Center concluded in a recent review of a scientific paper emphasizing the importance of ocean conditions in salmon survival, focusing on the role of ocean conditions over the importance of salmon survival in their freshwater habitat is misguided:

> There is no doubt that the ocean is important and affects numbers of returning adults. However, the number of smolts that enter the ocean is dependent on freshwater survival and management strategies that result in the highest freshwater survival possible, because not even the best ocean conditions can resurrect a dead fish.

See Fish Passage Center, Technical review of Welch et al. (2020), titled, *A synthesis of the coast-wide decline in survival of West Coast Chinook Salmon (Onchorhynchus tshawytsha, Salmonidae)* 15 (Dec. 4, 2020).

33. In short, there can be little doubt that the future of Snake River salmon and steelhead is extremely precarious and has been so for decades. Today, as in 1994, the system of hydroelectric dams that have caused, and will continue to cause, so much harm to these species still "literally cries out for a major overhaul," one that focuses on what these fish need not just to avoid extinction, but also to survive and return to a sustainable abundance instead of focusing on "what the establishment is capable of handling with minimal disruption." *Idaho Dep't of Fish & Game v. NMFS*, 850 F. Supp. 886, 900 (D. Or. 1994). The need for this major overhaul has never been more urgent.

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THE STATUS OF SOUTHERN RESIDENT KILLER WHALES

34. Southern Resident killer whales ("SRKW") are a population of the fish-eating ecotype of killer whales that is genetically distinct from and does not interbreed with other orca populations. The three pods that comprise the SRKW, dubbed J, K, and L, spend their time in the inland and coastal waters of the Northeast Pacific Ocean. SRKW travel broadly throughout these waters in pursuit of prey (particularly their preferred prey, Chinook salmon) and in the course of breeding, calving, socializing, and other activities. In the winter and spring months, these whales typically forage in coastal waters, including waters off the coast of southwestern Washington near the mouth of the Columbia River. In the summer months, all three pods have historically been present in the inland waters of the Salish Sea (Georgia Strait, Strait of Juan de Fuca, and Puget Sound). In recent years, however, all three pods have spent very little time in these waters, remaining instead in coastal waters for much of the summer as well.

35. In the 2008 BiOp, NOAA reported that the SRKW population consisted of 87 individuals. NOAA also determined that the species would need to sustain a growth rate of 2.3% per year over nearly three decades to reach the point where listing under the ESA would no longer be necessary. Since 2008, however, the SRKW population has continued to decline, to 83 whales in 2016 and to only 73 whales as of the latest population count in December 2019. In fact, the SRKW population is at its lowest number in more than 40 years—despite having been listed as "endangered" under the ESA since 2005 (and under Canada's Species at Risk Act since 2003). NOAA has estimated that if current conditions are maintained, the SRKW population will continue to decline and will likely go extinct. So precarious is their situation that NOAA lists the SRKW as one of nine species most likely to go extinct in the near term unless immediate action reduces current threats to their survival and recovery.

36. Given the precarious state of the SRKW population, there has been a concerted research effort, especially since 2014, to understand the environmental conditions necessary to SRKW survival and recovery. Among the anthropogenic threats identified by scientists are: reduced prey abundance, vessel impacts including acoustic disturbance (SRKW rely on

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echolocation to target their prey and otherwise depend on acoustic communication), toxic contaminant loads, oil spill risks, and climate change. Researchers have recognized that there are interactions among these threats, such that their cumulative effects must be addressed. That said, the best currently available scientific information has led scientists to conclude that a lack of SRKW's preferred prey, Chinook salmon, is the primary limiting factor to SRKW survival and future recovery.

37. Chinook salmon from the Columbia and Snake rivers form a critical component of the SRKW's diet. SRKW require abundant food all year long to meet their daily metabolic needs and to maintain body condition. Recent data show that Chinook are the primary species consumed by SRKWs when they are outside inland waters, and that a substantial portion of these originate in the Columbia/Snake River Basin. These runs are a particularly critical component of their prey base in the winter and early spring, when the SRKW spend time off the mouth of the Columbia River. Moreover, the Columbia/Snake River spring runs provide a nutrient-rich source of prey during a vital SRKW life stage, i.e., pregnancy. Recent research concludes that the nutritional health of pregnant females depends in important part on the availability of the Columbia/Snake River Spring runs, and that nutritional stress due to low Chinook availability during this window is significantly associated with unsuccessful pregnancies in SRKWs, especially late stage miscarriage. An extraordinary 70% of SRKW pregnancies end in miscarriage. These unsuccessful pregnancies, in turn, are impairing the potential for population growth through low recruitment as well as through the significant risk they pose to the health and survival of the limited number of reproductive females.

38. As discussed in greater detail elsewhere in this supplemental complaint, Chinook salmon from the Columbia and Snake Rivers today persist at a small fraction of their historic abundance. A number of factors, including the CRS dams and their operation, have caused steep—and continuing—declines in these runs. These dramatic declines mean that SRKW must now attempt to fill their nutritional needs from a tiny fraction of the Chinook that were once available.

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39. Compounding this problem, recent research shows that Chinook have experienced a significant decrease in size-at-age, especially for the largest, oldest Chinook. SRKW preferentially target these largest fish, through deep foraging dives that impose a high energetic cost. Because the largest, most mature fish are both smaller and less abundant (in absolute terms and also as a percentage of the population), SRKW now must complete more energy-intensive foraging dives to catch Chinook that are smaller (and therefore less caloric). This increased energetic cost is significant, especially in light of the extreme nutritional stress affecting SRKW.

40. SRKW consume adult Chinook from the Columbia and Snake Rivers regardless of whether the Chinook originated as wild fish or were raised in hatcheries as juveniles. In recent decades, hatchery programs have produced annually a large number of juvenile Chinook, a very small percentage of which mature to adulthood and are available as potential prey for SRKW. Even with the inclusion of hatchery-origin adult fish, however, the Columbia and Snake River Chinook populations persist today at only a small fraction of their historic size, due in large part to the current and historic operation of the CRS. Moreover, even hatchery populations have suffered significant declines due to mortality and stress events caused by their passage through the CRS dams and reservoirs, among other factors. For example, data shows that returns of hatchery-origin adult Snake River spring/summer Chinook have declined dramatically in the last five years.

41. Despite the recent SRKW population declines and the substantial recent research on the importance of prey availability generally and Columbia/Snake River Chinook specifically, the 2020 BiOp contains only a brief discussion of SRKW, and the CRSO FEIS and 2020 ROD contain virtually none. Instead, the agencies summarily conclude or concur in these documents that none of the alternatives they consider are likely to have an adverse effect on SRKW.

STATUTORY FRAMEWORK

A. The Administrative Procedure Act

42. The APA authorizes courts reviewing agency action to hold unlawful and set

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aside final agency actions, findings, and conclusions that are arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with law. 5 U.S.C. § 706(2)(A). Biological opinions issued by NOAA pursuant to Section 7 of the ESA are reviewed under this provision of the APA. *See, e.g., Bennett v. Spear*, 520 U.S. 154, 175 (1997). Claims that a federal agency's environmental impact statement violates the requirements of NEPA and its implementing regulations also are reviewed under the APA, as are claims against final agency action like the 2020 ROD. *See Ctr. for Biological Diversity v. Bernhardt*, 982 F.3d 723, 733–34 (9th Cir. 2020).

B. The Endangered Species Act

43. Section 7 of the ESA prohibits federal agency actions that may "jeopardize the continued existence" of a listed species or destroy or adversely modify its critical habitat. 16 U.S.C. § 1536(a)(2). Longstanding ESA regulations define "jeopardize the continued existence of" as:

> to engage in an action that 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; *see also NWF v. NMFS*, 524 F.3d 917, 931 (9th Cir. 2008) (confirming that "the jeopardy regulation requires NMFS to consider both recovery and survival impacts"); *NWF v. NMFS*, 184 F. Supp. 3d 861 (D. Or. 2016) (*inter alia*, discussing and applying these regulations to a prior BiOp).

44. Section 7 establishes an interagency consultation process to assist federal agencies in complying with their duty to avoid jeopardy to a species. Under this process, a federal agency proposing an action that "may affect" a listed species, including salmon and Southern Resident killer whales, must prepare and provide to the appropriate expert agency, here NOAA, a "biological assessment" of the effects of the proposed action. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). The action agency's biological assessment must be complete and accurate in order

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to comply with the ESA and its implementing regulations. *Res. Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1304–5 (9th Cir. 1993).

45. If an agency determines that its action "may affect" but is "not likely to adversely affect" a listed species or its critical habitat, the ESA regulations permit "informal consultation," in which there is no requirement for a biological opinion so long as NOAA concurs in writing with the "not likely to adversely affect" determination. 50 C.F.R. § 402.13. Federal agencies must use the best scientific data available in making such a determination. 16 U.S.C. § 1536(a)(2). If NOAA does not concur in this determination, or if the action agency determines that the action is "likely to adversely affect" the listed species, the agencies must engage in "formal consultation." 50 C.F.R. §§ 402.02, 402.14(a).

46. For those actions that require formal consultation, NOAA must review all information provided by the action agency, as well as any other relevant information, to determine whether the proposed action is likely to jeopardize a listed species or destroy or adversely modify its designated critical habitat. 50 C.F.R. § 402.14(h)(3). This determination is set forth in a biological opinion. *Id.*; 16 U.S.C. § 1536(b)(3)(A).

47. In formulating its biological opinion and determining whether an action will jeopardize a species or destroy or adversely modify its critical habitat, NOAA "shall use the best scientific and commercial data available." 16 U.S.C. § 1536(a)(2). It also must evaluate the effects of the action, together with any cumulative effects and the environmental baseline, on the listed species. 50 C.F.R. §§ 402.14(g)(3)–(4); *see generally* 50 C.F.R. § 402.02.

48. If, based on an analysis of these factors and in light of the current status of the species, NOAA concludes that the proposed action is not likely to jeopardize a listed species, or destroy or adversely modify its critical habitat, the action may proceed as proposed. If NOAA concludes that the proposed action is likely to jeopardize a listed species or destroy or adversely modify its critical habitat, however, it must identify and describe any reasonable and prudent alternative ("RPA") to the proposed action that it believes would avoid jeopardy and adverse modification. 16 U.S.C. § 1536(b)(3)(A). An RPA may only consist of measures that are within

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the scope of the action agency's legal authority and jurisdiction, that can be implemented consistent with the purpose of the proposed action, and that will avoid jeopardy to the species and adverse modification of its critical habitat. 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.02. If NOAA believes that there is no reasonable and prudent alternative to the proposed action, its biological opinion must so state. 50 C.F.R. § 402.14(h)(2).

49. Once an action agency initiates consultation, it cannot make any irreversible or irretrievable commitment of resources to a proposed action that may foreclose the formulation or implementation of any RPA measures that could avoid jeopardy. 16 U.S.C. § 1536(d). This prohibition in Section 7(d) remains in effect until the completion of the consultation process and supplements, but does not supplant, the duty to avoid jeopardy imposed by Section 7(a)(2). 50 C.F.R. § 402.09.

50. In addition, even after the consultation process is complete and an action agency receives a biological opinion, the action agency has a continuing and independent legal duty to avoid any action that would cause jeopardy to a listed species. 16 U.S.C. § 1536(a)(2). An action agency's reliance on an inadequate, incomplete, or flawed biological opinion to satisfy its duty to avoid jeopardy is arbitrary and capricious. *See, e.g.*, *Stop H-3 Ass'n v. Dole*, 740 F.2d 1442, 1460 (9th Cir. 1984); *Res. Ltd.*, 35 F.3d at 1304. The action agency's substantive duty to avoid jeopardy to listed species and/or adverse modification of their critical habitat remains in effect at all times and regardless of the status of the consultation.

51. Further, ESA Section 7(a)(1) requires action agencies to "utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of [ESA-listed] endangered species and threatened species." 16 U.S.C. § 1536(a)(1).

52. NOAA and the U.S. Fish and Wildlife Service have recently amended the ESA regulations that implement Section 7. *See* 84 Fed. Reg. 44,976 (Aug. 27, 2019) (revised ESA Section 7 regulations). A number of states and other organizations have challenged these changes to the Section 7(a)(2) regulations as contrary to the ESA, arbitrary, and capricious. *See California et al. v. Bernhardt et al.*, No. 19-cv-06013-JST (N.D. Cal); *Center for Biological*

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Diversity et al. v. Bernhardt et al., No. 19-cv-05206-JST (N.D. Cal.); *Animal Legal Def. Fund v. Bernhardt et al.*, No. 19-cv-06812-JST (N.D. Cal.). As explained further below, to the extent the 2020 BiOp and 2020 ROD rely on these revised Section 7 regulations, the revised regulations are arbitrary and contrary to law as applied in this case.

53. The ESA provides for judicial review of citizen suits against federal agencies and others, including suits against the Corps and BOR, for violations of the statute. 16 U.S.C. § 1540(g)(1)(A). It also authorizes the Court "to enjoin any person . . . who is alleged to be in violation of any provision of this chapter or regulation issued under the authority thereof." *Id.*

C. The National Environmental Policy Act

54. NEPA is our "national charter for protection of the environment." 40 C.F.R. § 1500.1(a). Its purpose is to "prevent or eliminate damage to the environment." 42 U.S.C. § 4321. Regulations promulgated by the Council on Environmental Quality (CEQ) implement NEPA. *See* 40 C.F.R. §§ 1500–1508; 21 C.F.R., Part 25.[6] CEQ recently amended these regulations. *See* 85 Fed. Reg. 43,304 (July 16, 2020). The CRSO FEIS, however, was prepared under the prior regulations, and so the prior regulations govern its review.

55. When enacting NEPA, Congress expressed great concern for the "profound impact of man's activity on the interrelations of all components of the natural environment …." 42 U.S.C. § 4331(a). Congress was specifically wary of "[a] growing technological power which is far outstripping man's capacity to understand and ability to control its impact on the environment." S. REP. NO. 91-296, at 6 (1969).

56. To achieve its purposes, NEPA requires all agencies of the federal government to prepare a "detailed statement" regarding all "major federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). This statement, known as an Environmental Impact Statement (EIS), must describe: (1) the "environmental impact of the

[6] Regulations for the Corps incorporate the CEQ requirements by reference. 33 C.F.R. § 325, App. B. Regulations for the Department of Interior, and hence BOR, incorporate and supplement the CEQ requirements. *See* 43 C.F.R. § 46.20.

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proposed action"; (2) any "adverse environmental effects which cannot be avoided should the proposal be implemented"; (3) "alternatives to the proposed action"; (4) "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity"; and (5) any "irreversible or irretrievable commitments of resources which would be involved in the proposed action should it be implemented." *Id.*; *see also* 40 C.F.R. § 1502.1 (2019).

57. The twin pillars of NEPA and its requirement of an EIS are that agencies (1) carefully and fully evaluate the environmental impacts of proposed actions before undertaking them, and (2) objectively and completely advise the public and decision-makers of the potential impacts of those actions, and of alternatives to them. 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1501.2, 1501.4, 1502.5 (2019). An agency's evaluation of environmental consequences must be based on "accurate scientific" information of "high quality." 40 C.F.R. § 1500.1(b) (2019). If there are not sufficient data available, the agency must address and evaluate the impacts in view of incomplete or unavailable information. *Id*. § 1502.22.

58. At the heart of NEPA's mandate and its implementing regulations is the requirement that an EIS contain a thorough discussion of the "alternatives to the proposed action." 42 U.S.C. § 4332(2)(C)(iii), (E). NEPA's implementing regulations provide that agencies must discuss "the environmental impacts of the alternatives including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, [and] the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity." 40 C.F.R. § 1502.16 (2019). The discussion of alternatives is intended to provide a "clear basis for choice among options by the decisionmaker and the public." *Id.* § 1502.14. NEPA's implementing regulations require the agency to "[r]igorously explore and objectively evaluate all reasonable alternatives." *Id.* § 1502.14(a). An agency's failure to consider a reasonable alternative is fatal to the sufficiency of an EIS. *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519 (9th Cir. 1992). As the NEPA regulations and case law make clear, an alternative need not be within an agency's

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existing legal authority or a complete solution to the agency's goals to warrant consideration and analysis. 40 C.F.R. § 1502.14(c) (2019); *Nat. Res. Def. Council, Inc. v. Morton*, 458 F.2d 827, 836 (D.C. Cir. 1972); *see also NWF v. NMFS*, 184 F. Supp. 3d at 942–44 (discussing the significance of this regulation to this case). In addition, the agency must appropriately and rationally describe and address the alternative of no action, along with any other alternatives it considers. 50 C.F.R. § 1502.14(d) (2019). *See also* Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981).

59. To comply with NEPA, an EIS must identify and disclose the direct, indirect, and cumulative impacts of the proposed action as well as those of alternative actions. 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1508.7, 1508.8, 1502.14 (2019). Direct effects are those "which are caused by the action and occur at the same time and place." 40 C.F.R. § 1508.8(a) (2019). Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Id*. § 1508.8(b). Cumulative impacts are impacts from "past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." *Id*. § 1508.7. "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id*. "Effects" or "impacts" (synonymous) include "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative." *Id.* § 1508.8(b). NEPA also requires agencies to evaluate the "relationship of people with th[e] environment," including economic or social impacts only if they are interrelated with natural or physical environmental effects. *Id.* § 1508.14.

60. Under NEPA, as noted above, federal agencies must take a "hard look" at the environmental consequences of their actions and alternatives to it before they act. *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1211 (9th Cir. 1998). Taking a hard look requires the agency to provide "a reasonably thorough discussion of the significant

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aspects of the probable environmental consequences." *California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982) (citation omitted). The hard look doctrine bars "[g]eneral statements about 'possible' effects and 'some risk' . . . absent a justification regarding why more definitive information could not be provided." *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998). This "ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

61. To satisfy the requirement that it take a "hard look" at the environmental consequences of its actions, and alternatives to those actions, an agency must engage in a "reasoned evaluation of the relevant factors" to ensure that its ultimate decision is truly informed. *Greenpeace Action v. Franklin*, 14 F.3d 1324, 1332 (9th Cir. 1992) (citation omitted). Additionally, "[a]gencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." 40 C.F.R. § 1502.24 (2019). An agency's failure to include and analyze information that is important, significant, up-to-date, available, or essential renders an EIS inadequate. *Id*. § 1500.1 ("The information must be of high quality.").

62. These principles apply to the economic as well as environmental analyses included in an EIS. While the purpose of NEPA is to evaluate the environmental consequences of a proposed federal action, "[w]hen an [EIS] is prepared and economic or social and natural or physical environmental effects are interrelated, then the [EIS] will discuss all of these effects on the human environment." 40 C.F.R. §§ 1508.14, 1508.8 (2019). An economic analysis or cost-benefit statement that includes erroneous data, excludes relevant information, or that is otherwise misleading, violates NEPA. *See Sierra Club v. Sigler*, 695 F.2d 957, 978–79 (5th Cir. 1983); *see also Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198 (9th Cir. 2008).

63. NEPA also requires agencies to disclose and analyze measures to mitigate the impacts of proposed actions. 40 C.F.R. §§ 1502.14(f), 1502.16(h) (2019). An agency's analysis

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of mitigation measures must be reasonably complete in order to evaluate properly the severity of the adverse effects of an agency's proposed action prior to the agency making a final decision. *See S. Fork Band Council of W. Shoshone of Nev. v. U.S. Dep't of the Interior*, 588 F.3d 718, 727 (9th Cir. 2009) (an EIS must "discuss mitigation measures, with sufficient detail to ensure that environmental consequences have been fairly evaluated") (citation omitted).

PROCEEDINGS LEADING TO THE 2020 BIOP, CRSO FEIS, AND 2020 ROD

A. The 2000 and 2004 Biological Opinions

64. In December 2000, NOAA issued a biological opinion for the operation of 14 federal projects that NOAA, the Corps, BOR, and BPA labeled the "Federal Columbia River Power System" or "FCRPS" (the "2000 FCRPS BiOp"). In the 2000 FCRPS BiOp, after explaining its jeopardy standard and analysis, NOAA concluded that the proposed operation of these projects would jeopardize eight of the twelve then-listed salmon and steelhead Evolutionarily Significant Units or "ESUs" in the Columbia River Basin. The agency included a Reasonable and Prudent Alternative ("RPA") that, according to NOAA, would avoid jeopardy.

65. NWF filed this case in May of 2001, alleging that the 2000 BiOp was arbitrary, capricious, and contrary to law because, among other things, it relied on speculative, off-site mitigation actions from both federal and non-federal parties. The state of Oregon, the Nez Perce Tribe, and others joined or supported this challenge. On May 7, 2003, the Court agreed with NWF that the 2000 FCRPS BiOp was legally flawed and relied on improper factors in reaching a no-jeopardy finding for the RPA. *See NWF v. NMFS,* 254 F. Supp. 2d 1196, 1216 (D. Or. 2003). The Court remanded the opinion to NOAA to prepare a new opinion that complied with the law.

66. On November 30, 2004, NOAA issued its revised biological opinion (the "2004 FCRPS BiOp"). In sharp contrast to its previous opinion, and with a new, comparative approach to determining jeopardy, NOAA concluded in the 2004 BiOp that the proposed FCRPS operations included in the "Updated Proposed Action" ("UPA") would not jeopardize the continued existence of the listed ESUs of salmon and steelhead in the Columbia Basin. Both the

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District Court and the Ninth Circuit sharply rejected the 2004 FCRPS BiOp and once again remanded it to NOAA. *NWF v. NMFS*, No. CV 01-640-RE, 2005 WL 1278878 (D. Or. May 26, 2005); *NWF v. NMFS*, No. 01-640-RE, Opinion and Order of Remand (Oct. 7, 2005); *aff'd*, *NWF v. NMFS*, 524 F.3d 917 (9th Cir. 2008) (amended opinion).

B. The 2008 Biological Opinion and the 2010 Supplemental Biological Opinion

67. After a nearly three-year remand, NOAA issued a new biological opinion on May 5, 2008 (the "2008 FCRPS BiOp"). The 2008 FCRPS BiOp concluded that the "Prospective Actions" proposed by the Corps, BOR, and BPA—which were treated as a reasonable and prudent alternative ("RPA")—would not jeopardize any ESA-listed salmon or steelhead ESUs/DPSs or adversely modify or destroy any of their designated critical habitat. The actions addressed in the 2008 FCRPS BiOp were not materially different from those addressed in the 2004 or 2000 FCRPS BiOps. To reach a no-jeopardy/no-adverse-modification finding for actions that did little to address the fundamental obstacles to the survival and recovery of ESA-listed salmon and steelhead, NOAA once again created from whole cloth a third new kind of jeopardy analysis for this consultation. Through formal records of decision, the Corps and BOR agreed to implement the RPA in the 2008 FCRPS BiOp, and on that basis also concluded that their actions would avoid jeopardy.

68. After notifying the Action Agencies of the violations of law in the 2008 BiOp and agency records of decision described above, NWF filed yet another supplemental complaint challenging the 2008 FCRPS BiOp and the 2008 records of decision for the Corps and BOR. Again, the State of Oregon and the Nez Perce Tribe joined or supported this challenge. As part of a brief stay of proceedings, on May 18, 2009, the Court issued guidance in the form of a memorandum to counsel providing its preliminary view that the 2008 BiOp was arbitrary and capricious and suggesting a series of steps that could address the Court's concerns. The agencies did not take these steps. Instead, the Action Agencies developed an Adaptive Management Implementation Plan ("AMIP") that they and NOAA touted as a response to the concerns

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outlined in the Court's guidance memorandum. The Court eventually allowed NOAA and the Action Agencies a 90-day voluntary remand "to consider, among other actions, integrating the Adaptive Management Implementation Plan and its administrative record into the 2008 BiOp." *See NWF v. NMFS*, No. 01-640-RE, Order (ECF No. 1750) (Feb. 19, 2010). In addition, the Court directed the agencies to consider the best available science and to consider implementing the parties' suggestions for actions necessary to comply with the law including removal of the four lower Snake River dams.

69. On May 20, 2010, NOAA issued a Supplemental Biological Opinion ("2010 Supplemental BiOp") integrating the AMIP. The 2010 Supplemental BiOp did not alter any of the conclusions or analyses from the 2008 BiOp and did not address the Court's previous guidance, nor did it propose any new actions that would affect salmon and steelhead survival through the FCRPS. The Action Agencies nonetheless adopted the 2010 Supplemental BiOp through supplemental RODs signed on June 11, 2010 (collectively the "2010 RODs").

70. NWF filed further supplemental complaints challenging the 2010 Supplemental BiOp and the 2010 RODs. On August 2, 2011, the Court held that the 2008/2010 BiOps were arbitrary and capricious for their "*entire* ten-year term" and made clear that the agencies' fundamental approach to avoiding jeopardy required re-examination. *NWF v. NMFS*, 839 F. Supp. 2d 1117, 1128 (D. Or. 2011) (emphasis in original). The structural problems in the 2008/2010 BiOps included a jeopardy standard that violated the ESA, the agencies' inability to identify and implement mitigation measures, and their inability to reliably predict and verify any salmon survival improvements that might accrue from such measures. The Court once again remanded the 2008/2010 BiOp to NOAA and the Action Agencies and required that in any new BiOp, NOAA shall (1) "reevaluate[] the efficacy of the RPAs in avoiding jeopardy," (2) "identif[y] reasonably specific mitigation plans for the life of the biological opinion, and" (3) "consider[] whether more aggressive action, such as dam removal and/or additional flow augmentation and reservoir modifications are necessary to avoid jeopardy." *NWF v. NMFS*, 839 F. Supp. 2d at 1130. The Court also granted in part an injunction requested by plaintiffs and

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others and ordered continuation of previous levels of court-ordered spill to alleviate some of the short-term irreparable harm to ESA-listed species. *Id*. at 1130.

C. The 2014 Supplemental BiOp

71. After more than two years on remand, on January 17, 2014, NOAA issued the 2014 Supplemental BiOp—which supplemented the inadequate 2008 and 2010 BiOps. Despite the efforts of many in the region to convince the agencies to implement a "major overhaul" of the dams and reservoirs, the 2014 Supplemental BiOp largely repeated and incorporated the problems that plagued the 2008 and 2010 BiOps. This included a continued reliance on the illegal jeopardy standard in the 2008 BiOp, and continued reliance on estuary and tributary habitat actions that were not reasonably certain to occur and/or had uncertain benefits. Nonetheless, the Action Agencies adopted the 2014 Supplemental BiOp through Supplemental Records of Decision signed on February 28, 2014 (Corps), and February 26, 2014 (BOR).

72. NWF filed yet another supplemental complaint, its seventh, challenging the 2014 Supplemental BiOp and 2014 records of decision. On May 4, 2016, the Court issued a comprehensive opinion rejecting the combined 2008, 2010, and 2014 BiOps for violations of the ESA. *NWF v. NMFS*, 184 F. Supp. 3d at 886–934. The Court also concluded that the Corps and BOR had violated the procedural requirements of NEPA by failing to prepare an EIS for their actions. *Id*. at 934–950. The Court expressly noted that a major benefit of the EIS process would be that "it allows innovative solutions to be considered and may finally be able to break through any bureaucratic logjam that maintains the status quo. . . . The FCRPS remains a system that 'cries out' for a new approach. A NEPA process may elucidate an approach that will finally move the listed species out of peril." *Id.* at 948.

73. The Court's opinion regarding the ESA violations in the 2014 BiOp (and its 2008 and 2010 predecessors) provides important and relevant context for NWF's ESA claims in this eighth supplemental complaint. Consequently, NWF describes key points in the Court's ESA rulings below.

- At the outset, the Court rejected the "trending towards recovery" standard the

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agencies had relied on to evaluate whether the RPA addressed in the BiOps would avoid jeopardy. The Court found that the approach the agencies followed in these BiOps disregarded without explanation the work of the ICTRT. *Id*. at 886–88. It also found that even an increasing population does not necessarily equate to no-jeopardy, *id*. at 889; that even though a population may be increasing incrementally, its abundance may be so low and growing so slowly that the species' prospects of recovery would be appreciably reduced, *id*. at 890–91; and that even if the species' risk of extinction is below some threshold, "that does not necessarily mean its chances of recovery are not being appreciably diminished," *id*. at 892.

- Similarly, the Court rejected the jeopardy framework in these BiOps as contrary to the ESA and its implementing regulations because it did not "analyze recovery impacts with respect to reaching any recovery abundance level at any point in time," *id*. at 892; or assess whether the actions might delay the species' prospects of recovery and thereby appreciably reduce them, *id*. at 892 (citing NOAA Memorandum). The Court held that these failures prevented the agencies from rationally concluding the RPA would not jeopardize the species' recovery, *id*. at 895.

- The Court also noted that the agencies' jeopardy standard had changed with each successive BiOp since 2000 and accordingly "its latest interpretation of the jeopardy standard is entitled to less deference than a court normally gives," *id*. at 896 (citing cases).

- Separately, the Court concluded that the agencies' analysis failed in multiple ways to "give the 'benefit of the doubt' to the [listed] species," *id*. at 901 (citing cases). The Court found, for example, that the agencies' evaluation of uncertainty was both inconsistent in some respects and consistently (but improperly) favored more positive predictions without explaining why less positive ones could be disregarded, *see, e.g.*, *id*. at 899 (noting that "even if wide confidence intervals cannot be avoided, they cannot be used as a shield . . . against the need for further analysis"); *id*. at 923–27 (discussing assumed benefits from kelt reconditioning and a program to reduce avian predation); *id*. at 928 (summarizing BiOp failures regarding uncertainty).

- In a similar vein, the Court found the agencies' reliance on RPA actions, intended to benefit salmon, arbitrary and contrary to law either because these actions were not reasonably certain to occur, or because their projected benefits were too uncertain, or both. *Id*. at 901–02; *see also id*. at 904–06 (benefits of certain actions not reasonably certain to occur), 907–09 (actions themselves not reasonably certain to occur), 910–14 (similar analysis for other actions), 923–29 (same).

- The Court found further that the agencies' analysis accounting for the effects of climate change on the listed species and the RPA was not complete,

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reasoned, or adequately explained. *Id.* at 917–23. The Court noted that the agencies had failed to consider significant recent evidence of the ways that climate change will harm salmon, reduce the effectiveness of the RPA measures, and increase the risk of a catastrophic event. *Id.* The Court also found that the agencies had failed to determine whether the RPA was sufficient to avoid jeopardy in light of the expected added harm from climate change and decreased effectiveness of the RPA. *Id.* at 922–23.

- The Court found that the agencies did not act arbitrarily in concluding that SRKW were not likely to be adversely affected by the RPA in the 2014 BiOp. *Id.* at 948–49. The Court based this holding on the agencies' reliance on a 2012 study questioning the importance of prey availability, their view that SRKW primarily eat salmon from the Fraser River during the summer months, and their view of the role of hatchery fish from the Columbia and Snake Rivers in the SRKW's diet. *Id.*

- The Court found the standard employed by the agencies for assessing whether their actions were likely to destroy or adversely modify critical habitat failed to comply with the ESA. *Id.* at 930. The Court, however, ultimately upheld the conclusion that the RPA would not adversely modify or destroy designated critical habitat based on the record before it.

74. The Court's determination that the Corps and BOR should have prepared an EIS for their actions also provides relevant guidance for review of the CRSO FEIS and the 2020 ROD even though the Court's decision addressed a failure to prepare any EIS. For example, the Court found that:

- "The existing NEPA documents relevant to the FCRPS from 1992 to 1997 are too stale," *NWF v. NMFS*, 184 F. Supp. 3d at 937–38 (citing the NEPA regulations and CEQ guidance indicating that analyses more than five years old are likely to be outdated).

- "[A] compliant NEPA analysis . . . in this case . . . may well require consideration of the reasonable alternative of breaching, bypassing, or removing one or more of the four lower Snake River dams. This is an action that NOAA Fisheries and the Action Agencies have done their utmost to avoid considering for decades." *Id*. at 942.

- "Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies." *Id*. at 944 (quoting CEQ FAQ, 46 Fed. Reg. at 18027).

- "[T]he purpose of an [EIS] is to evaluate the possibilities in light of current *and*

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contemplated plans and to produce an informed estimate of the environmental consequences. . . . Drafting an [EIS] necessarily involves some degree of forecasting." *Id*. at 947 (quoting *City of Davis v. Coleman*, 521 F.2d 661, 676 (9th Cir. 1975) (emphasis added)). Or, as the Court also noted, "'[r]easonable forecasting and speculation'" is implicit in NEPA." *Id*. (quoting *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1246 n.9 (9th Cir. 1984)).

- "One of the benefits of a NEPA analysis, which requires that all reasonable alternatives be analyzed, is that it allows innovative solutions to be considered and may finally be able to break through any bureaucratic logjam that maintains the status quo. . . . The FCRPS remains a system that 'cries out' for a new approach." *Id*. at 948.

75. Following this ruling, the Court set a schedule for preparing a new BiOp and for complying with NEPA. At the very strong insistence of the Corps, BOR, and NOAA that they could not possibly complete a remand and comply with the ESA and NEPA in less than five years, the Court set a schedule that allowed the agencies until Sept. 24, 2021, to complete a new BiOp and an EIS and issue new RODs. *NWF v. NMFS*, Order of Remand (July 6, 2016) (ECF No. 2089) (as modified by ECF No. 2288 (Apr. 17, 2018)). On October 19, 2018, however, in a Presidential Memorandum, President Trump directed the agencies to complete the remand and produce a final EIS, new BiOp, and final RODs by September 30, 2020, a full year earlier than the agencies had stated was possible. *See* 2020 BiOp at 95 & n.16. The agencies have now complied with this presidential schedule notwithstanding an unprecedented public health emergency, multiple requests from states and others for additional time to review and comment on a draft of their plan, and their statements to the Court regarding the minimum amount of time it would take to adequately prepare these documents.

76. Separately, in late 2016, the plaintiffs sought an injunction to increase voluntary spring spill at the lower Snake and lower Columbia River dams up to the level allowed by state water quality standards. The Court granted this relief but delayed its implementation until the spring of 2018 to allow the agencies, and state and tribal salmon scientists, to develop more specific plans for implementing this increased spring spill. *NWF v. NMFS*, No. 3:01-CV-0640-SI, 2017 WL 1829588 (D. Or. April 3, 2017) (spill injunction order). The Ninth Circuit subsequently affirmed this ruling shortly before it was to take effect in 2018. *NWF v. NMFS*,

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886 F.3d 803 (9th Cir. 2018).

77. Thereafter, a number of parties to this case, including the Corps, BOR, and BPA, negotiated a so-called "Flexible Spill Agreement" to govern voluntary spring spill operations during the remainder of the remand, i.e., during the spring of 2019, 2020, and 2021, or until NOAA issued a new BiOp and the Action Agencies issued a final EIS and adopted new RODs. *NWF v. NMFS*, Status Report re: 2019–2021 Spill Operations Agreement (Dec. 18, 2018) (ECF No. 2298) (and Attachment thereto). This Agreement, however, explicitly recognized that "no [p]arty makes any concessions regarding the legal validity [or] scientific validity . . . of the spill operations contemplated in this Agreement" or any biological opinion.[7] *Id*., Att. A at 9. Nonetheless, NWF and others agreed not to pursue further litigation in this case for the three-year term of the Agreement so long as the Action Agencies implemented the Agreement. *Id*. It appears at this time that the Action Agencies will continue to implement the actions outlined in Flexible Spill Agreement in 2021 even though they have now issued new RODs.

THE 2020 BIOP DOES NOT CURE THE DEFECTS IN PRIOR BIOPS

78. The 2020 BiOp is final agency action reviewable by the Court. It provides the basis for the Corps' and BOR's conclusion in the 2020 RODs that implementation of the CRS operations they propose will not jeopardize any listed species of salmon or steelhead, destroy or adversely modify any of their designated critical habitat, or be likely to adversely affect endangered Southern Resident killer whales. The proposed action addressed in the 2020 BiOp, however, is a significant roll-back of protections for salmon and steelhead even from those addressed in the illegal 2008/2010/2014 BiOps and RODs, and from the 2019–2021 bridge operations described in the Flexible Spill Agreement. Moreover, as with virtually every BiOp since 2000, the 2020 BiOp announces yet another new standard for determining whether the

[7] NOAA issued a short-term, interim biological opinion that addressed these flexible spill operations. In accordance with the terms of the Flexible Spill Agreement, none of the parties to this case have challenged it or agreed that it was legally or scientifically adequate. It has now been replaced by the 2020 BiOp.

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proposed action will avoid jeopardy. Like its predecessors, however, and as explained below, this new, comparative "not appreciably *worse*" standard also is illegal. For at least the following reasons, the 2020 ROD and 2020 BiOp are arbitrary, capricious, and contrary to law.

A. The 2020 BiOp Repeats Errors of the Past and Adds Many New Ones To Reach The Conclusion that CRS Operations Do Not Jeopardize Listed Salmon or Steelhead

1. The 2020 BiOp Employs an Illegal Approach to Assessing Jeopardy and the Regulations on Which It Relies Are Illegal As Applied.

79. The jeopardy standard set forth in the 2020 BiOp is contrary to the requirements of the ESA and its implementing regulations because it does not assess rationally or legally whether the proposed action will appreciably reduce the listed species' likelihood of survival and recovery. Instead, the 2020 BiOp compares the proposed action to the inadequate and illegal actions the Action Agencies have been pursuing under a series of failed BiOps culminating in 2014 and, based on this comparison, concludes that the proposed action will avoid jeopardy. This is not the first time the agencies have pursued an improper comparative approach. *See, e.g., IDFG v. NMFS*, 850 F. Supp. at 899; *NWF v. NMFS*, No. CV 01-640-RE, 2005 WL 1278878 (D. Or. May 26, 2005).

80. The agencies begin by narrowly and arbitrarily defining the scope of the agency action subject to consultation. Like the earlier and illegal 2004 BiOp, the 2020 BiOp categorizes what it describes as "nondiscretionary" dam operations as part of the environmental baseline. This baseline includes the effects of decades of harm to listed species, including from the unlawful operation of the Columbia River System over the past 20 plus years. It also includes the ongoing harm to listed species that would result from continuing the current operation of the hydrosystem, even though the decision to continue current operations is discretionary, harmful, and would be illegal. The 2020 BiOp then excludes this harm from its analysis of the proposed action on the basis that the terms "jeopardize the continued existence of" and "destruction or adverse modification" apply solely to the effects of the proposed action, and not to their contrived environmental baseline. To the extent the Agencies rely on recent revisions to the

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regulations implementing the ESA to avoid considering the past and ongoing effects of the operation of the CRS in their jeopardy analysis, those regulations are arbitrary and contrary to law as applied in this case. *See* 50 C.F.R. § 402.02 ("environmental baseline" includes the consequences of "ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify"); *id.* ("effects of the action" only include consequences that "would not occur but for the proposed action and [are] reasonably certain to occur").

81. NOAA then applies a new, comparative, and arbitrary jeopardy standard to its pared-down definition of the agencies' action. Specifically, the 2020 BiOp erroneously concludes that the proposed action will not jeopardize any ESA-listed species of salmon or steelhead so long as the effects of the proposed action are comparatively the same as the effects of decades of illegal operations that have brought the listed species to the brink of extinction. NOAA then actually employs an even lower standard by concluding that there is no jeopardy so long as a species' status is not appreciably *worse* under the proposed action than it was under the previous unlawful actions, relying in part on the preamble to the recently revised ESA regulations. According to the law of this case and Ninth Circuit precedent, however, even a proposed action that improves a species' survival can still jeopardize the continued existence of that species if it prevents or delays recovery. *NWF v. NMFS*, 184 F. Supp. 3d at 888–92; *see also NWF v. NMFS*, 524 F.3d at 931–33. NOAA's new jeopardy standard, like its predecessors, conflicts with the requirements of the ESA, relies on new regulations that are not valid as applied in this case, and is arbitrary and illegal.

82. NOAA's new jeopardy analysis once again fails to rationally address the recovery prong of the jeopardy inquiry. The 2020 BiOp also does not even attempt to remedy the problem with the 2014 BiOp's "trending toward recovery" standard because the 2020 BiOp does not consider the individual abundance levels of the various endangered or threatened populations, or what population growth trends would be necessary to avoid appreciably diminishing the species' likelihood of recovery. For example, the 2020 BiOp uses life-cycle modeling to project geometric mean abundances across various populations, but then does not analyze or rationally

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explain what these projections mean for the species' likelihood of recovery. The 2020 BiOp fails to identify, let alone rationally use and rely on, any articulation of species recovery and a timeframe for achieving it. The ESA regulations for assessing jeopardy and prior case law require the agencies to rationally address this issue. 50 C.F.R. § 402.02; *NWF v. NMFS*, 184 F. Supp. 3d at 893–95. To the extent the 2020 BiOp seeks to rely on the new ESA regulations to justify its analytic approach and no-jeopardy conclusion, these regulations are illegal as applied in this case.

83. Similarly, NOAA's new jeopardy analysis also fails to rationally address the survival prong of the jeopardy inquiry. While the 2020 BiOp describes a threshold associated with survival, neither it nor the 2020 ROD explain rationally the relationship of that threshold to the conclusion that the proposed action will not appreciably reduce the listed species' likelihood of survival. Specifically, the 2020 BiOp includes some analysis of a Quasi-Extinction Threshold probability for different listed populations, which measures the probability that a given population will drop to lower than a certain number of fish over a specific period of time. But the 2020 BiOp does not include any rational analysis of how this measure relates to the listed species' likelihood of survival. NOAA attempts to justify this new approach as going back to basics, *see* 2020 BiOp at 44–46, but providing some arbitrary and incomplete information about the species' future prospects and how the proposed action may affect these is not a rational or legal basis for concluding that the proposed action will avoid jeopardy. NOAA's new standard conflicts with the ESA and the Court's prior decisions in this case, and relies on regulations that are illegal as applied in this case.

2. The Analysis in the 2020 BiOp is Arbitrary and Contrary to Law.

84. The 2020 BiOp fails in multiple ways to "give the 'benefit of the doubt' to the [listed] species." *See NWF v. NMFS*, 184 F. Supp. 3d at 906. For example, the agencies claim that there is uncertainty about the precise extent of "latent mortality," and that the 15-year proposed action will help to clarify the extent of this harm, without acknowledging that the

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assumptions about latent mortality in the 2020 BiOp lack a rational basis, that any uncertainty regarding the extent of these effects must be resolved in favor of protecting the species, and that available and credible scientific information would allow for a rational assessment that accounts for this factor regardless of its exact extent. The 2020 BiOp fails to consider or use the best currently available scientific information throughout, including, but not limited to, not using available and credible quantitative information and analyses regarding the listed species.

85. The 2020 BiOp also relies on a suite of actions to reach its no-jeopardy conclusion that differ only incrementally from actions the Court has previously rejected. The 2020 BiOp does not offer a reasoned explanation for why this largely recycled suite of actions that has failed to avoid jeopardy in the past will now produce a different result. Moreover, there are both significant inconsistencies in how the agencies have described the proposed action between the CRSO FEIS, the 2020 BiOp, and the 2020 RODs, as well as aspects of the proposed action that will increase the harm to salmon and steelhead. These inconsistencies and harmful actions are themselves unexplained and arbitrary, and render arbitrary the conclusion in the 2020 BiOp that the proposed action will avoid jeopardy.

86. The proposed action and the identification of its effects in the 2020 BiOp are vague and uncertain. For example, the proposed action, which is for a 15-year period of operation of the CRS dams and reservoirs, only identifies spring spill operations that the Action Agencies will implement in the first year. These operations are simply those described for the third year of the current three-year Flexible Spill Agreement, operations the parties to that Agreement explicitly noted they were not endorsing as legally or scientifically adequate. *NWF v. NMFS*, Notice re 2019–2021 Operations (ECF No. 2298) (Dec. 18, 2018) (Att. A at 9). Beyond the first year, the CRSO FEIS and other documents do not actually identify, and thus the 2020 BiOp cannot assess, any specific spring spill operations, establish a floor for these operations, or commit to any specific or binding standards that will determine these operations. The vague adaptive management plan the agencies describe does not cure this problem.

87. Similarly, the 2020 BiOp does not identify specific tributary or estuary habitat

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actions that the Action Agencies will take and, because they are not specified, the 2020 BiOp cannot rationally evaluate the effects of these unknown actions. Even though these spill, habitat, and other actions and their effects are not reasonably certain to occur, the 2020 BiOp relies on them to conclude that they will be sufficient, in combination with the rest of the proposed action, to avoid jeopardy. This conclusion is arbitrary, capricious, and contrary to law. Recent revisions to the regulations implementing the ESA purport to allow action agencies to rely on non-binding mitigation measures in ESA consultations. *See* 50 C.F.R. § 402.14(g)(8). To the extent the agencies seek to rely on these new regulations to assume that mitigation measures not reasonably certain to occur will nonetheless help avoid jeopardy, those regulations are arbitrary and contrary to law as applied in this case.

88. The 2020 BiOp fails to explain the effects of each component of the proposed action in a rational and detailed way. Instead, it simply aggregates all of the components, many of them undefined, to reach an unsupported and arbitrary conclusion as to their effects on species. Under this approach, the 2020 BiOp provides no explanation for how certain components of the action will affect species, and it is impossible to tell whether or how it considers certain impacts. For example, under the proposed action, the agencies may start zero nighttime flow operations substantially earlier in the year. This change is intended to benefit power generation. There is, however, no analysis of how this change to the flow regime will affect specific salmon and steelhead populations. Likewise, under the proposed action, additional ponding will occur behind John Day Dam during certain periods for the purported purpose of reducing avian predation. This measure, however, will also adversely impact flow, fish travel time, and water temperature. The 2020 BiOp does not analyze or consider these negative effects on fish. Where the 2020 BiOp does discuss the specific effects of a component of the proposed action, it frequently overestimates benefits to the species and underestimates or ignores harm. For example, the agencies claim that the installation of so-called "fish friendly turbines" will benefit species, but they fail to analyze whether the new turbine design will draw more fish into the turbines, or whether this increase in turbine interactions outweighs any

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potential decreased lethality for the species.

3. The 2020 BiOp fails to address climate change rationally.

89. The 2020 BiOp arbitrarily fails to consider and incorporate harm to salmon from climate change into the jeopardy analysis. Climate change will worsen conditions for salmon significantly during the 15-year period covered by the proposed action and even more so beyond this short time frame. It will do so in ways that compound the adverse effects of the CRS dams and their operation—for example, by increasing water temperatures to levels that are dangerous for migrating adults and juveniles. There is ample and credible scientific information to assess these ongoing and future effects. The 2020 BiOp, however, fails to assess, accurately or rationally, the full scope of climate change impacts together with the proposed action based on the best available science.

90. Even under the arbitrary limitations on the analysis imposed in the 2020 BiOp, if the effects of the proposed action are combined with the additional harm from climate change, many species and populations face a substantially higher risk of extinction. *See* 2020 BiOp at 279 (acknowledging that Snake River spring/summer Chinook will likely experience "reductions in productivity, abundance, and potentially, to spatial structure and diversity" in a warming world); *id.* at 275 (acknowledging that in a warming world, many smaller Chinook populations would likely be extirpated and the abundance and productivity of larger populations would be substantially reduced). Despite this heightened risk, and the acknowledgement that climate impacts will occur, the agencies arbitrarily fail to consider whether the proposed action will jeopardize the species once the expected impacts from climate change are included. Instead, the agencies inexplicably conclude that the proposed action will *benefit* the species and so they need not consider its impacts in the context of the significantly higher risk of extinction they acknowledge salmon will face in a warming world. *See id.* at 291.

91. The proposed action considered in the 2020 BiOp does not include any additional mitigation measures to ensure that CRS operations are not likely to jeopardize salmon in a

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warming world. The proposed action does identify some actions that it asserts will "increase the resiliency" of the listed species to climate change in unspecified ways and to an unspecified extent. To the extent the 2020 BiOp assumes these actions will mitigate for the adverse effects of both CRS operations and climate change, that position is arbitrary and lacks a rational explanation. If the agencies take the position that they need not ensure their actions will avoid jeopardy to the listed species in the context of current and advancing climate change, that position is contrary to law, arbitrary, and lacks a rational explanation.

92. The 2020 BiOp fails to rationally consider and account for the fact that climate change will reduce the effectiveness of the measures in the proposed action that are intended to benefit salmon. It also fails to consider and account for the fact that some elements of the proposed action will exacerbate the effects of climate change and harm to species. *But see* 2020 BiOp at 279 (arbitrarily asserting that the proposed action will not exacerbate the conditions caused by climate change).

93. Recent revisions to regulations implementing the ESA purport to limit the effects of an agency's action that must undergo consultation to effects that would not occur but for the proposed action and that are reasonably certain to occur. *See* 50 C.F.R. §§ 402.02; 402.17. To the extent the agencies rely on these revised regulations to avoid considering the effects of CRS operations in the context of future and advancing climate change, those regulations are arbitrary and contrary to law as applied in this case.

B. The 2020 BiOp's Critical Habitat Analysis Is Arbitrary and Contrary to Law

94. The 2020 BiOp fails to rationally assess whether CRS dams and operations will destroy or adversely modify designated salmon and steelhead critical habitat because the standard NOAA employs does not rationally assess whether the proposed action will appreciably reduce the value of the critical habitat for conservation of these species. A lawful assessment of whether a proposed action destroys or adversely modifies critical habitat must focus on the ability of designated critical habitat's essential features to contribute to the recovery of the

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species, including an assessment of whether the proposed action precludes or appreciably delays improvements to features essential to recovery. These analyses are missing from the 2020 BiOp and 2020 RODs. In fact, the 2020 BiOp applies a standard for assessing whether the proposed action unlawfully affects designated critical habitat that conflicts with the ESA to an even greater extent than the standard the Court found unlawful in *NWF v. NMFS,* 184 F. Supp. 3d at 929–933.

95. NOAA largely derives its improper approach to critical habitat in the 2020 BiOp from the revised definition of "destruction or adverse modification" in the new ESA regulations. This new definition removes the requirement that agencies consider whether a proposed action is likely to preclude or significantly delay development of habitat features essential for the conservation of a species. *See* 81 Fed. Reg. 7214 (Feb. 11, 2016) (former version of 50 C.F.R. 402.02, defining "destruction or adverse modification"). Consistent with this change, the agencies make no effort to assess or consider the extent to which the proposed action is likely to preclude or significantly delay development of physical or biological features essential for conservation of the listed species, despite acknowledging that important features of critical habitat for listed salmon and steelhead are likely to remain deficient far into the future. This new standard is directly at odds the ESA itself, as well as with the Court's rejection of NOAA's previous standard for assessing whether already severely degraded critical habitat retains the ability to someday become functional. *See NWF v. NMFS*, 184 F. Supp. 3d at 930. The revised regulations on which NOAA relies for its analysis of "destruction or adverse modification" of critical habitat are arbitrary, illegal, and contrary to law as applied in this case.

96. Rather than assessing whether the proposed CRS operations preclude or significantly delay necessary improvements in the ability of designated critical habitat to meet the conservation needs of the listed species, the 2020 BiOp instead concludes that the proposed action will not destroy or adversely modify critical habitat because it will not further degrade the essential features of critical habitat by a "meaningful amount." *See, e.g.*, 2020 BiOp at 293. NOAA reaches this conclusion despite acknowledging that essential elements of critical habitat, such as water quality and safe passage, will remain degraded, and even identifying additional

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negative impacts to some essential features. *See id*. The "meaningful amount" standard is inconsistent with the ESA, its implementing regulations, and prior court decisions in this case, and the agencies' reliance on this standard is arbitrary and capricious.

97. The 2020 ROD and 2020 BiOp also arbitrarily fail to consider any description of recovery in their critical habitat analysis and instead compare the impacts of the proposed action on the role of critical habitat in recovery to a void. *See, e.g.,* 2020 BiOp at 293. Both the Ninth Circuit and this Court have emphasized that a lawful critical habitat analysis must include some rational articulation of recovery, *see NMFS v. NMFS*, 524 F.3d at 936; *NWF v. NMFS*, 184 F. Supp. 3d at 932, and the agencies' failure to consider whether the proposed action affects the ability of critical habitat to support recovery is arbitrary and unlawful.

C. The "Not Likely to Adversely Affect" Finding and NOAA's Concurrence in it for Southern Resident Killer Whales is Arbitrary and Contrary to Law

98. In the 2020 BiOp, NOAA's brief description of the status of SRKW acknowledges that researchers predict this critically endangered population will continue to decline over the next 50 years, assuming current fecundity and death rates remain constant. 2020 BiOp at 1363. The agency briefly mentions some of the major threats to SRKW that have led to this ongoing decline, including prey availability, toxic chemicals, and impacts from sound and vessels. *Id*. at 1364–66. Regarding prey availability, NOAA notes that "there does not appear to be sufficient information to conclude that prey availability is the dominant limiting factor" affecting SRKW survival and recovery. *Id*. at 1365.

99. Following this truncated and misleading overview of the current status and threats to SRKW, NOAA concurs with the Action Agencies' conclusion that continued operation of the CRS as proposed is "not likely to adversely affect" this population of killer whales. 2020 BiOp at 1362–70. NOAA says it did not need to quantify SRKW mortality resulting from the proposed action to reach this conclusion, "so long as it can be reasonably concluded that the decrease in the prey base for Southern Residents resulting from hydrosystem operations is less than the increase in the prey base resulting from the hatchery programs funded by the action

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agencies." 2020 BiOp at 1366–67. NOAA goes on to agree with the Action Agencies' assertion that they will produce more salmon in hatcheries than they will kill by operating the hydrosystem. *Id*. at 1367–68.

100. The Action Agencies' findings, and NOAA's concurrence in these findings, ignore the best available science and violate the requirements of the ESA and its implementing regulations for at least three reasons: (1) they employ an irrational and unlawful comparative standard to assess effects on SRKW (similar to the unlawful comparative jeopardy standard they employ for salmon); (2) they fail to consider the importance to SRKW of Chinook prey generally and the Columbia and Snake River Chinook runs specifically; and (3) their conclusion that hatcheries produce more Chinook than the hydrosystem kills is arbitrary and not based on the best available science.

101. The agencies' decision to limit their assessment of the effects of the proposed action on SRKW to a rough comparison between fish killed by CRS operations and hatchery fish produced is arbitrary because it is untethered to the level of prey SRKW need for survival and recovery. NOAA estimates that historical Columbia Basin Chinook run size exceeded 4.5 million fish, and SRKW evolved to rely on this abundant source of prey. In the 2008 BiOp, NOAA estimated that there were one million Chinook from the Columbia and Snake River stocks (including hatchery fish) available in the coastal range of the SRKW. Even taking NOAA's 2008 estimate at face value, that is a reduction of more than 3.5 million Chinook. The CRS and its operations are a significant factor (if not the most significant factor) that keeps these runs suppressed. The 2020 BiOp contains no discussion of the significance of this much reduced prey base to SRKW, despite the fact that NOAA has found continuing to provide SRKW with current levels of prey (and holding other variables constant) will lead to continuing declines in the already highly endangered SRKW population. The agencies arbitrarily and unlawfully failed to consider whether maintaining this depressed and inadequate prey base from the Columbia and Snake Rivers is likely to adversely affect SRKW.

102. Similarly, the agencies have failed to adequately consider the best available

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science showing the risks associated with maintaining the already small population of SRKW, let alone allowing it to continue to decline. Allowing a population to hover on the brink of extinction for long periods of time increases the odds that a chance event (such as one or more bad years for Chinook) will lead to extinction of the species. Even if the level of Chinook from the Columbia/Snake were enough for the SRKW population to maintain its current levels—and it is not—the population remains at significant risk the longer it remains at precariously low levels.

103. The 2020 BiOp fails to rely on the best available science showing that the lack of adequate prey is the most significant threat to SRKW survival and recovery. NOAA and the Action Agencies claim there is not adequate evidence to find that prey availability is the dominant threat to SRKW, but they ignore significant new research that precisely addresses areas of uncertainty identified in older studies.

104. For example, recent research shows that spring run Chinook from the Columbia/Snake fill a critical role in the SRKW's diet, both because they fill a gap in seasonally available prey and because they support a critical life stage: pregnancy. The agencies' discussion of total Chinook available from the Columbia/Snake obscures the importance of, and differences in, seasonal abundance. In fact, declines in the Columbia/Snake spring runs have been enormous, while declines in fall runs have been relatively smaller. Yet the 2020 BiOp estimates that the Action Agencies will produce far more fall run hatchery Chinook than spring run hatchery Chinook, exacerbating this seasonal prey deficiency. The agencies never address whether changes in the seasonal distribution of Chinook prey are likely to adversely affect an already nutritionally stressed SRKW population that needs a seasonally appropriate supply of food just to survive, let alone recover.

105. The agencies have also failed to consider the implications of the recent, significant shift in SRKW habitat use. If the SRKW continue to spend much of the summer off the coast rather than in the Salish Sea, Columbia/Snake Chinook will likely form an even more critical component of their year-round diet. In addition, the agencies have failed to disclose the acknowledged limitations in recent research they cite in claiming that Columbia/Snake Chinook

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(especially spring run Chinook) are less important to SRKW than other runs. Finally, the agencies have failed to consider the cumulative impacts of reduced prey availability from the Columbia/Snake in combination with reductions in other runs (especially other spring runs), and other major threats to the SRKW, including climate change.

106. NOAA and the Action Agencies fail to rely on the best available science in claiming that the SRKW currently have more Chinook prey available from the Columbia/Snake Rivers than they did in the 1960s, before the lower Snake River dams were constructed. They arrive at this conclusion by comparing the total number of Chinook, hatchery and wild, today to adults counted at Bonneville dam in the early 1960s. This comparison fails to account for dramatic changes in harvest levels: in the 1960s, harvest levels below Bonneville dam and in the ocean were nearly 50%, which means that there were nearly twice as many fish in the ocean (and available to SRKW) as there were at Bonneville. Second, the agencies fail to rely on the best available science that shows SRKW now need a greater *number* of Chinook to provide the same volume of prey because Chinook are smaller than they once were. The declining size-at-age of Chinook not only means the SRKW now need increasing numbers of fish to provide the same amount of food, it also increases the energetic cost of foraging by making additional, energy-intensive foraging dives necessary. Assessing impacts to SRKW by comparing the total number of Chinook today to the number of adult Chinook that were counted at Bonneville dam decades ago arbitrarily masks a major decline in the volume of prey from the Columbia/Snake.

107. Finally, the agencies' conclusion that hatcheries produce more Chinook than the hydrosystem kills is arbitrary and not based on the best available science. The agencies rely on two estimates to conclude that the proposed action does not affect the SRKW prey base. First, the agencies rely on an estimate of the hatchery-produced adult Chinook salmon that will return to Bonneville each year: approximately 143,000 adult Chinook, including around 51,000 spring run Chinook and 86,000 fall run Chinook. 2020 BiOp at 1367–68. The agencies do not offer any discussion of whether their estimated 143,000 adult hatchery Chinook, when combined with the much smaller wild adult returns, will be adequate to support SRKW nutritional needs, despite

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the fact that this number is many times smaller than the historic run size. Nor do they explain whether this estimate is reasonable despite the significant decreases in adult returns of hatchery-origin Chinook in the last five years.

108. Second, the agencies rely on a comparison of the number of Chinook smolts from hatcheries that currently arrive at Lower Granite dam to the number of wild smolts that are killed between Lower Granite dam and Bonneville dam to conclude that any loss of wild Chinook smolts is more than offset by the production of hatchery smolts. 2020 BiOp at 1367–68. The agencies estimate that there are on average 1.2 million wild Chinook smolts that arrive at Lower Granite dam each year, and that "more than half" of these will die before they pass Bonneville due to the CRS operations and other causes. *Id.* They then observe that there are a large number of smolts produced in hatcheries, without discussing how many of those hatchery smolts also die during their passage through the hydrosystem. NOAA concludes that hatchery production more than offsets the number of wild smolts lost during passage through the hydrosystem and so dam operations are not likely to adversely affect SRKW. This comparison and conclusion are arbitrary for at least three reasons: the number of smolts killed is incomplete, the number of smolts they start with is depressed, and the number of smolts produced is ultimately irrelevant to SRKW. First, the number of smolts killed is incomplete because the agencies are only considering mortality between Lower Granite and Bonneville, which arbitrarily excludes latent mortality and cumulative threats. Second, the 1.2 million wild smolts that arrive at Lower Granite is far lower than it would be had the CRS and its operations not killed many of the adults attempting to migrate upstream to spawn the year prior, and for generations prior to that. NOAA's comparison effectively eliminates from consideration the past and continuing effects of the hydrosystem that have brought Chinook to their current perilous condition. Third, and most importantly, SRKW prey on adult Chinook, not smolts, and assessing impacts to SRKW based on an incomplete estimate of smolt mortality is arbitrary, especially in light of data showing that adult returns of Chinook continue to decline despite relatively stable levels of smolt production.

109. For these and other reasons, NOAA's decision to concur with the Action

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Agencies' erroneous "not likely to adversely affect" finding—and the Action Agencies' failure to revisit or reconsider that finding—is not based on the best available science and is arbitrary, capricious, and otherwise contrary to law. Moreover, to the extent that NOAA and the Action Agencies rely on the recently revised ESA regulations to support their flawed analysis and conclusions, those regulations are invalid as applied here.

THE CRSO FEIS VIOLATES NEPA AND ITS IMPLEMENTING REGULATIONS

110. The CRSO FEIS is almost unimaginably large, running to many thousands of pages and including dozens of lengthy and technical appendices. For all its length and apparent complexity, however, it fails fundamentally to achieve the basic purpose of an environmental impact statement: to fully and objectively disclose the reasonably foreseeable direct, indirect, and cumulative effects on the environment of the proposed action and a range of reasonable alternatives to it, so that the public and decision makers can understand the effects of the action in the context in which it will occur and make well-informed decisions. *See supra* at ¶¶ 54–63 (summarizing the purposes and requirements of NEPA).

111. The causes of this remarkable failure begin with the description of purposes the Action Agencies articulate for the CRSO FEIS, purposes that drive and limit both the choice of alternatives and the focus of effects analyses for those alternatives. These purposes have more to do with meeting a number of the currently authorized statutory uses of the CRS dams, especially those with economic effects on status quo river users, than with identifying and considering opportunities to protect the environment, including the rapidly vanishing Columbia and Snake River salmon and steelhead populations that have been at the center of this controversy for nearly three decades. In fact, the focus of the CRSO FEIS once again appears to be "on what the establishment is capable of handling with minimal disruption" rather than on "what can be done to protect" salmon, steelhead, and the environment. *Cf., IDFG v. NMFS,* 850 F. Supp. at 900 (describing the fundamental flaw in a BiOp from the early 1990s).

112. This consistent focus is reflected not only in the overall purposes of the CRSO

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FEIS but also in the range of alternatives the Action Agencies have assembled for analysis, the ways in which they analyze these alternatives, and the repeatedly asymmetrical assumptions and presentations of the effects of the alternatives, an approach that consistently elevates adverse impacts to status quo economic interests, fails to seek or rationally evaluate opportunities to mitigate these effects, and downplays, minimizes, or dismisses environmental consequences and opportunities. *Cf. id*. at 899 (criticizing the federal agencies for consistently "disregard[ing] only the low end, worst case assumptions" and preferring more favorable views of the effects of their actions). The following paragraphs describe and summarize many, but not all, of the arbitrary and illegal ways the CRSO FEIS fails to comply with NEPA, its implementing regulations, and governing case law.

A. The Statement of Purpose and Need for the CRSO FEIS is Arbitrary and Illegal

113. The CRSO FEIS begins with a statement that the "purpose and need" for an EIS in this case is to "evaluat[e] measures to avoid, offset or minimize impacts to resources affected by managing the CRS." CRSO FEIS at 1-4 to 1-5. It then sets forth eight "Resource Purposes" that inform and constrain the analysis of alternatives. Five of these resource purposes describe economic resources like "water supply for irrigation," "waterway transportation," "recreation at CRS lakes and reservoirs," a "reliable power supply," and flood control. *Id*. Of the remaining three, only one directly addresses environmental effects, "conservation of fish and wildlife resources," *id*., and even then this purpose is subsequently re-defined as merely "improving" the current perilous condition of salmon and steelhead as compared to continued implementation of the RPA from the illegal 2014 BiOp, *id*. at 2-3 (restating objectives). Another resource purpose is to "[c]onsider and plan for climate change impacts on resources." *Id*. at 1-4. But as it turns out, the analysis of how the alternatives meet or do not meet this purpose consists largely of arbitrarily overstating the costs of replacing power generated by the four lower Snake River dams with clean, renewable resources. What the analysis does not include is any effort to rationally, let alone accurately, account for the reasonably foreseeable adverse effects on salmon

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and steelhead of advancing climate change in combination with the effects of the different alternatives. *See infra* at ¶¶ 145–49. The final resource purpose that guides the CRSO FEIS is to "[p]rotect and preserve cultural resources." CRSO FEIS at 1-4. Yet here again, as numerous Native American Tribes pointed out in their comments on the draft CRSO EIS, the analysis unaccountably limits its evaluation of tribal cultural impacts and dismisses them as negligible while offering an expansive consideration of other alleged societal effects. *See infra* at ¶¶ 132–37.

114. This approach to defining and constraining the analysis in the CRSO FEIS is arbitrary and illegal. The fundamental purpose of an EIS is to "promote efforts which will prevent or eliminate damage to the *environment* and biosphere and stimulate the health and welfare of man." 42 U.S.C. § 4321 (emphasis added). "Economic and social effects" are only considered when they are "interrelated" with "natural or physical environmental effects." 40 C.F.R. § 1508.14 (2019). These effects do not alone trigger NEPA and neither the statute nor the regulations afford them a privileged position for protection in the analysis of alternatives. Yet it is the asserted effects on economic interests which drive the analysis in the CRSO FEIS and guide the choice among alternatives. Contrary to the requirements of NEPA, the inadequate and incomplete discussion of environmental impacts takes a back seat to meeting the five economic resource purposes of the CRSO FEIS. While agencies are afforded considerable discretion in defining a project's purpose and need for an EIS, *Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1066 (9th Cir. 1998), an agency may not "define its objectives in unreasonably narrow terms," *id.* (quoting *City of Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142 (9th Cir. 1997)). Here, the focus of the CRSO FEIS on meeting a specific list of purposes dominated by economic factors improperly defines its objectives in just such "unreasonably narrow terms."

B. The Range of Alternatives in the CRSO FEIS is Unreasonable

115. The CRSO FEIS begins with a "no-action" alternative which would continue

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implementation of the RPA from the failed 2014 BiOp. *See* CRSO FEIS at 2-6 to 2-37. The CRSO FEIS does not directly acknowledge or explain that the Court found this suite of actions illegal. Instead, the agencies compare the effects of this illegal no-action alternative to the effects of the alternatives they consider. This comparative analysis is the primary rationale they offer to support their conclusions about the relative effects of the action alternatives on the economically oriented resource purposes they have identified. This comparative framework, and by extension the assessment of effects, is misleading and arbitrary because the agencies anchor their comparative analysis in an illegal no-action alternative without adequately disclosing that continuing that suite of actions is not actually an option.

116. The action alternatives themselves, including the preferred alternative, are complex combinations of measures, some of which do more and some of which do less to protect the environment and meet the economic purposes of the CRSO FEIS. These so-called "multiple objective" alternatives include:

- Multiple Objective 1 ("MO1"), a suite of measures built around a block spill operation for salmon and steelhead that repeatedly has been criticized by salmon scientists;
- Multiple Objective 2 ("MO2"), a suite of measures built around maximizing power generation at the expense of salmon and steelhead survival;
- Multiple Objective 3 ("MO3"), a suite of measures built around removal of the four federal dams on the lower Snake River as well as other measures, some of which would harm salmon and steelhead survival; and,
- Multiple Objective 4 ("MO4"), a suite of measures built around increased spring and summer spill at the lower Snake and lower Columbia River dams along with other measures, some of which would harm migrating salmon and steelhead.

See generally CRSO FEIS, Chpts. 2 & 3.

117. Rather than examine individual measures, the FEIS compares the effects of each of the multiple-objective alternatives and the preferred alternative *as a whole* to the illegal no-action alternative. This approach obscures the effects of individual measures within each alternative because the effects of the individual measures are lumped together in an overall

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assessment of the effects of the alternative. In particular, it obscures the effects of the most significant individual measures that would benefit salmon, especially removing the four lower Snake River dams in MO3 and increased spill in MO4, because these measures are embedded in multiple objective alternatives that combine them with measures that would simultaneously degrade salmon survival or increase costs. This structuring of the alternatives ensures that it is not possible for the public or decision makers to understand the effects of individual measures or evaluate any combination of measures that differ from the multiple objective alternatives in which they are embedded—thus undermining the core informative purpose of NEPA itself.

118. The agencies do not actually select any of the four multiple-objective alternatives as the preferred alternative they will implement because they conclude that none of them actually meet sufficiently the economic resource purposes set forth in the CRSO FEIS.[8] Instead, they present a preferred alternative that they describe as a combination of measures from the multiple objective alternatives. This alternative was not evaluated by the technical review teams the agencies assembled from among the cooperating agencies to help develop and assess alternatives. Instead, it was assembled after-the-fact and without the benefit of a comprehensive review. The chief difference between the preferred alternative and MO3 appears to be the elimination of dam removal and its replacement with so-called "flexible" spring spill operations from the 2019 Flexible Spill Agreement—at least for the spring of 2021. *See* CRSO FEIS at 7-334 to 7-336 (describing these spill operations but not their source); *see also supra* at ¶ 86 (describing failure to actually specify future spill operations beyond 2021).

119. Nowhere does the CRSO FEIS attempt to describe or analyze an alternative that would provide the largest environmental benefits or the best prospects for survival of salmon and steelhead populations, let alone how they might best mitigate any adverse direct, indirect, or

[8] This approach creates NEPA problems of its own: it means the CRSO FEIS effectively offers only one alternative the agencies consider reasonable—the preferred alternative—since they find that none of the other alternatives adequately satisfy their articulation of the purpose and need for action.

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cumulative effects of such an alternative. The agencies explain that they preliminarily identified a single-purpose alternative for salmon and steelhead but did not develop and evaluate it fully because such a single focus would not meet their articulation of resource purposes. The agencies also refused to analyze an alternative that would combine lower Snake River dam removal with higher levels of spill at the lower Columbia River dams, an alternative identified and analyzed by the Fish Passage Center as "MO34" well before the agencies released the draft CRSO EIS. This alternative provided the most significant improvement in salmon and steelhead survival. *See* McCann *et al.*, Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye 2019 Annual Report, Chapter 2 at 23, 23–59 (explaining that "there were several important findings from the CSS model analyses [including that] the non-federal MO34 alternative demonstrated the greatest expected improvements across all biological response metrics, compared to all of the federal CRSO-EIS alternatives").

120. The range of alternatives the agencies present in the CRSO FEIS is not reasonable. As the NEPA regulations and case law make clear, the discussion of alternatives is "the heart" of the NEPA process, and is intended to provide a "clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14 (2019). NEPA's implementing regulations require the agency to "[r]igorously explore and objectively evaluate all reasonable alternatives." *Id.* § 1502.14(a). An agency's failure to consider a reasonable alternative is fatal to the sufficiency of an EIS. *Idaho Conservation League*, 956 F.2d at 1519. To satisfy this requirement, an agency must engage in a "reasoned evaluation of the relevant factors" to ensure its ultimate decision is truly informed. *Greenpeace Action*, 14 F.3d at 1332 (citation omitted). Here, the agencies arbitrarily failed to consider a reasonable range of alternatives and arbitrarily evaluated the alternatives they did consider in ways that obscure the public's ability to understand their effects.

121. This failure to present and evaluate rationally a range of reasonable alternatives is further compounded by the truncated and arbitrary consideration of MO3, the alternative that includes removal of the lower Snake River dams. As the NEPA regulations and case law make

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clear, an alternative need not be within an agency's existing legal authority or a complete solution to the agency's goals to warrant consideration and selection. 40 C.F.R. § 1502.14(c) (2019); *Morton*, 458 F.2d at 836; *see also NWF v. NMFS*, 184 F. Supp. 3d at 942–44 (discussing the significance of this regulation to this case). Here, the agencies framed MO3 to appear *unreasonable* from the start with their statement of purpose and need and its focus on status quo, economic river uses. Because these "resource purposes" are largely restatements of the existing authorized uses of the lower Snake River dams, any alternative that would require new authority and funding would not meet them.

122. Of equal importance, the agencies' analysis of MO3 is improperly truncated: it simply stops with the conclusion that it is too expensive and will not meet the agencies' statement of purpose and need. This approach arbitrarily precludes any analysis that "may be able to break through any logjam that simply maintains the precarious status quo." *NWF v. NMFS,* 184 F. Supp. 3d at 876. In fact, NEPA requires agencies to consider what additional Congressional approval or funding might be necessary to implement this alternative. *See id.* at 943 ("[a]lternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies." (quoting CEQ FAQ)). The agencies entirely omitted this analysis and instead reject MO3 based on its alleged cost with no further consideration.

123. The agencies also support their conclusion that MO3 will not meet their resource purposes with a fundamentally skewed analysis of MO3 itself. As explained further below, the agencies' arbitrary analysis of MO3 starts with the inclusion of measures that would unnecessarily lower salmon and steelhead survival (e.g., reducing the duration of summer juvenile fish passage spill, modified turbine operations, and capping spill at the remaining four lower Columbia River dams). In their analysis of the effects of MO3, the agencies also irrationally overstate its economic costs (e.g., for replacement power, continued irrigation and transportation) and understate its potential benefits (e.g., for recreation, tribal interests and

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broader socioeconomic values). *See infra* at ¶¶ 125–40.

C. The Conclusions in the CRSO FEIS and 2020 ROD Are Built on a Series of Arbitrary and Irrational Assumptions and Analyses

124. Beyond the significant structural failures of the CRSO FEIS, it is riddled with analyses and assumptions for numerous measures and their effects that are arbitrary, inconsistent, or unexplained. In the paragraphs that follow, NWF describes some, but not all, of these flaws. Individually and in combination, they render the CRSO FEIS and the Corps' and BOR's reliance on it in the 2020 ROD arbitrary, capricious, and contrary to law.

125. One of the most critical flaws in the CRSO FEIS is the arbitrary analysis that addresses the cost of replacing the power generated by the four lower Snake River dams with clean, renewable resources as part of MO3. The sharply and arbitrarily inflated costs attributed to this measure are fundamental to the agencies' decision to reject MO3 as too expensive. *See* 2020 ROD at 31–34; *see also* CRSO FEIS at 7-9 through 7-14. There are at least three problems with this analysis.

126. First, the agencies assume that all replacement resources for the Snake River dams would have to be available in 2022 and price these replacement resources accordingly. This assumption is arbitrary because it is not possible that the dams would be removed next year. Because the cost of renewable resources is predicted to continue to fall dramatically in the coming years, analyzing the cost of replacing the power from the dams at 2022 prices dramatically increases replacement costs as compared to a reasonable timeframe. The agencies attempt to explain their selection of this unrealistic date as necessary in order to provide a consistent starting point for analyzing effects and to avoid alleged uncertainty. What they fail to acknowledge is that this date is entirely unrealistic, that using it significantly inflates the predicted costs of replacement power as compared to more realistic dates, and that high-quality, reliable data regarding future renewable energy costs is available to analyze a more realistic date, or range of dates, for power replacement without engaging in a "crystal ball inquiry." *See Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1072 (9th Cir. 2002) (quoting *Save Our*

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Ecosystems, 747 F.2d at 1246 n.9).

127. Second, notwithstanding the arbitrary use of 2022 as the date for pricing replacement power from the lower Snake River dams, the agencies apply this assumption inconsistently. Specifically, the CRSO FEIS presents an analysis of the costs of replacing the power from the lower Snake River dams that includes an assessment of the impact of the future loss of power generation from coal plant closures across the Northwest that are projected over the next decade, well beyond 2022. The agencies nonetheless calculate the additional cost these closures would allegedly add to replacing the power from the Snake River dams with clean, renewable resources on a 2022 replacement basis. And in doing so, they also ignore available and credible information that indicates continued significant declines in the cost of a variety of clean replacement resources in the coming decade and beyond. The agencies then rely on this mismatched and inconsistent analysis as an additional basis for concluding that replacing the power from the lower Snake River dams with clean resource makes MO3 too expensive to meet their purpose and need.[9]

128. Finally, the agencies' analysis of replacement power costs for MO3 in the CRSO FEIS fails to identify, even approximately, the most cost-effective combination of clean, renewable replacement resources. Instead, the agencies simply identified a sufficient bulk amount of clean resources at 2022 prices to replace power from the dams.[10] This unreasonably simplistic approach, together with the 2022 replacement date, led the agencies to identify a replacement portfolio that is substantially more expensive than would actually be required to

[9] The CRSO FEIS also presents an analysis of replacing the power from the lower Snake River dams under MO3 with conventional resources (e.g., largely natural gas). The agencies conclude that while this option is much less expensive than their inflated assessment of the costs of a clean replacement portfolio, it would have unacceptable climate impacts.

[10] The agencies measured the amount of replacement resources necessary by the amount needed to maintain the same loss of load probability ("LOLP") without the dams as with them. The agencies arbitrarily fail to explain why the current LOLP is the only reasonable number, or why they failed to include other standard measures of the risks and benefits of a given combination of resources.

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implement MO3. The agencies also ignored available, high-quality, and reliable information they could have used to identify a more efficient, less costly replacement portfolio.

129. Comments on the draft CRSO FEIS identified this failure and pointed to integrated resource planning ("IRP") processes as one approach to analyze a more optimal combination of power resources that would be needed in the future without the Snake River dams. The agencies' response—that NEPA does not require them to conduct a full IRP analysis, *see, e.g.*, CRSO FEIS at T-986–98—begs the question of whether it is rational to simply fail to make any attempt to identify a less costly and more efficient combination of replacement resources, regardless of whether they conduct an IRP analysis. This skewed approach to evaluating costs and economic effects is contrary to NEPA and established case law. *See Sigler*, 695 F.2d at 978–79; *see also Ctr. for Biological Diversity*, 538 F.3d at 1198.

130. A second major and arbitrary failing in the agencies' assessment of the costs and benefits of MO3 is their failure to evaluate and disclose the full socioeconomic benefits of a restored river. Specifically, the agencies fail to actually use (as opposed to catalogue) available and reliable information to describe the very large socioeconomic benefits of increased returns of salmon and steelhead and a restored lower Snake River. In comments on the DEIS, NWF and others identified this striking omission, along with well-established (and even required) methods to assess these benefits, such as CEQ's published Principles, Requirements and Guidelines for incorporating these values into the NEPA process. The agencies' response is that they were under no legal obligation to follow these Guidelines, CRSO FEIS at T-673, and that, in their view, the available information on these socioeconomic effects is too general and uncertain to use, *id*. at 3-1373 to 3-1380. The first part of this response once more begs the question whether they could have addressed this issue rationally and comprehensively even without explicitly following the CEQ or other guidelines and the second part is an irrational version of asserting that the perfect should be the enemy of the good. Methods for assessing passive use, existence value, or total economic value of environmental resources are well-established and there is sufficient, reliable information to allow a detailed assessment of these values.

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131. The CRSO FEIS does not actually analyze these kinds of values. CRSO FEIS at 3-1380 (explaining that it will focus only on the socioeconomic effects of the alternatives on fisheries). In fact, almost 20 years ago in the Lower Snake Feasibility FEIS, these same agencies included a detailed and quantitative assessment of passive use/existence values that found they were very large. *See, e.g.*, Lower Snake River Juvenile Salmon Migration Feasibility Report & FEIS, Summary at 42 (Feb. 2002) (describing results of quantitative analysis including for dam removal alternative). Recent economic assessments of the benefits and costs of removing the lower Snake River dams also have found very large passive use or existence values associated with a restored river and increased salmon returns. *See, e.g.*, CRSO FEIS at 3-1378 (discussing 2019 analysis by ECONorthwest of passive use values associated with lower Snake River restoration).[11] While the agencies recite brief summaries of this and other studies, they dismiss them as an imperfect basis for further analysis and effectively treat the passive use/existence value of a restored river and increased salmon returns as *zero*—a value that is arbitrary and irrational. This approach falls well short of the reasonable forecasting requirements of NEPA.[12] *See Neighbors of Cuddy Mountain*, 137 F.3d at 1380 (NEPA "bars "[g]eneral statements about 'possible' effects and 'some risk'" where more definitive information is available).

132. The CRSO FEIS adds to its long list of remarkable shortcomings when it

[11] While the agencies acknowledge the relevance of this analysis, they erroneously assert that it relies on only one survey of passive use/existence values and then dismiss it from further consideration. *See* CRSO FEIS at 3-1376. The point is not that the agencies should have relied on the specific passive use/existence values described in this analysis but that dismissing it—and all other analyses of both methods and values for addressing passive use/existence values, then defaulting to the effects of the alternative of commercial and other fisheries, *see, e.g., id*. at 3-1380 to 3-1389, effectively hides these potentially large and positive socioeconomic benefits from the public and decision makers.

[12] The agencies may also assert that the CRSO FEIS did address this issue by describing the economic value of some aspects of river-based recreation and fishing from a restored lower Snake River. First, the dollar value of recreation and the existence value of a restored river and increased salmon returns are different aspects of a complete and objective socioeconomic analysis. Second, even the description in the FEIS of the economic benefits to recreation and fishing of a restored river are unaccountably incomplete.

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addresses the impacts of the alternatives on Native American Tribes and environmental justice. The agencies first limit their assessment of effects on Indian Trust Assets and cultural resources to an area within one mile of the dams and reservoirs for all 19 Tribes affected by the CRS and its operations. They also limit their definition of cultural resources to exclude many impacts to Native American Tribes, despite the fact that the CRS and its operations have a profound and devastating impact on Tribes across the Pacific Northwest by impairing and destroying cultural, economic, social, physical, and spiritual practices that depend on a healthy river and abundant salmon.[13] Numerous Tribes submitted extensive statements detailing these impacts, often as cooperating agencies in the development of the CRSO FEIS. The agencies, however, failed to incorporate any of this information into their analysis in any meaningful way and simply appended these tribal reports and statement to the FEIS. The agencies concluded that there will be no direct or indirect effects on Indian Trust Assets or cultural resources from the alternatives (except for MO3), based on the arbitrary constraints they placed on their analysis and their failure to address and account for relevant and credible information about Tribal impacts. CRSO FEIS at 3-1390 to 3-1471. The agencies similarly fail to include any meaningful analysis of the effects of the alternatives on the Treaty-reserved rights of affected Tribes.

133. One of the many impacts to Tribes that the agencies ignore in their arbitrary and constrained analysis is the effect of CRS operations on the portion of the Clearwater River between Dworshak dam and Lower Granite dam. The Clearwater River has tremendous cultural importance to the Nez Perce Tribe as a traditional place to gather and swim during the summer months. Cold water releases from Dworshak dam have a major adverse effect on the Tribe's ability to use the Clearwater River below Dworshak dam for these traditional cultural purposes. The Action Agencies' arbitrary definition of the action area as only the area immediately surrounding each dam and reservoir excludes this portion of the Clearwater River despite its

[13] The 19 federally recognized Native American Tribes the agencies consider affected by their actions span a wide geographic area and include Tribes from the upper Snake and Columbia River Basins to the Pacific coast and many areas in between.

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traditional cultural importance to the Nez Perce Tribe, and despite the fact that actions in the preferred and other alternatives directly impact this stretch of the river.

134. Because the agencies find no effects on Indian Trust Assets, cultural resources, or treaty rights based on the arbitrary geographic and other limits they place on their analysis, they also do not address tribal impacts in their discussion of cumulative effects, CRSO FEIS at 6-109 to 6-119; T-1016, even though the cumulative adverse effects of the CRS and its operations for over 80 years have been more devastating for Native American Tribes and people than any other group. The agencies' startling and dismissive conclusion is further facilitated by their approach of comparing the effects of the preferred and other alternatives to the no-action alternative. This comparative approach effectively removes from consideration the immense past impacts of the CRS and its operations, and its continuing future impacts, on tribal communities in the basin.

135. For MO3, consistent with their arbitrary approach of highlighting its potential harmful effects while downplaying its potential benefits, the agencies describe in some detail the potentially harmful impacts from this alternative to archeological and cultural sites, including sites important to Tribes. Specifically, they emphasize the harm that could result from looting and other activities if currently inundated sites were no longer inundated. Yet they describe only briefly and in passing the potential benefit to Tribes if those sites were no longer inundated and Tribes could once again access the culturally and historically important sites that CRS operations have rendered inaccessible for decades. The agencies also fail to consider any potential mitigation options that they and the Tribes could implement to protect these newly accessible sites.

136. In contrast to the one-mile radius the agencies use to limit their assessment of impacts to Tribes, in the section of the CRSO FEIS on environmental justice, the agencies consider the impacts of the alternatives on low income and disproportionally affected communities over the largest geographic area and longest time frame addressed in the entire document—7 western states and 139 counties over the next 50 years (twice as long as the time limit they place on evaluating climate impacts for example). CRSO FEIS at 3-1472 to 3-1564.

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One of the only impacts they calculate for this vast area and time is the effect on utility bills for these communities. Unsurprisingly, given the sharply and improperly inflated costs they assign to replacing the power from the lower Snake River dams with clean resources, *see supra* at ¶¶ 125–29, they conclude that the asserted rate impacts for MO3 would be very large and adverse while the effects of the preferred alternative would be minor. The contrast between the agencies' crabbed treatment of tribal impacts and their expansive treatment of what they call "environmental justice" effects is one of the most stunning, asymmetrical, and arbitrary analyses in the entire document.

137. The agencies' attempts to justify this asymmetry are themselves irrational and unavailing. They claim that they can limit their analysis of impacts for cultural and tribal resources to areas within one mile of the dams and reservoirs: "The co-lead agencies focused on the locations where there were understandable direct and indirect effects, as opposed to third and fourth order effects, which are harder to predict, speculative, and thus difficult to evaluate, as a part of the NEPA process." CRSO FEIS at T-1014. But they fail to explain how power costs and their rate impacts over the next 50 years and across 7 states are somehow more direct and predictable than the harm to cultural sites and practices that depend on fish and a free-flowing river. Nor is it any excuse that some of these impacts are "difficult to evaluate"—the Tribes provided detailed information, and in any event, NEPA requires evaluation of impacts even where there is some uncertainty.

138. More broadly, throughout the CRSO FEIS the agencies take an arbitrary and asymmetrical approach to defining the time horizon they will consider in analyzing the effects of the alternatives. For example, the agencies assert that the capital costs of replacing the two dozen turbines in the four lower Snake River dams should *not* be included as a cost of implementing the preferred alternative because these costs will not be incurred within the time frame of the proposed action. These costs, which are likely to exceed one billion dollars, will be incurred within the next 50 years. The agencies never rationally explain why they can use a 50-year period for calculating the costs of MO3 to irrigation and rate impacts across the west but

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may use a shorter period for assessing the capital costs of the preferred alternative or for assessing climate impacts. The effect of these asymmetries, however, is clear: they arbitrarily make MO3 appear much more expensive and the preferred alternative much less expensive.

139. The CRSO FEIS also takes an illegal and irrational approach to analyzing and disclosing the impacts of the alternatives on other resources. For example, the agencies report that under MO3, all currently irrigated land (chiefly above Ice Harbor dam and from its reservoir) would simply go out of production and remain completely unproductive for the next 50 years. This is not a rational assessment, but it does produce a very large dollar figure as an adverse effect of MO3. Comments on the DEIS identified other, credible approaches to this issue but the agencies rejected them. Moreover, the agencies support their finding that these lands would simply be unproductive for the next 50 years by relying on stale information: they identify the same mitigation measure to continue irrigation identified in the 2002 Lower Snake Feasibility EIS (which the agencies concluded then would be too expensive), adjust its costs for inflation, and again conclude it would be cost prohibitive. What they do not do is make any effort to explore or describe any more reasonable, less expensive mitigation measure for the potential irrigation impacts of MO3.

140. Likewise, the agencies' analysis of transportation impacts finds that these impacts for the preferred and multiple objective alternatives, except MO3, would be negligible (since none of these alternatives disturb status quo transportation uses) while the impacts of MO3 would be large. The FEIS presents several lines of analysis to describe these large impacts but what it fails to do is evaluate measures that could reduce or mitigate these effects. *See, e.g.*, CRSO FEIS at 3-1128 (acknowledging that modeling of transportation impacts does not "address transitional costs associated with short-term infrastructure investments" that may need to occur to provide adequate transportation infrastructure). It also fails to place these potential effects in a real world context of rapidly declining use of the lower Snake River for transportation of goods, the steady increase in shipping by rail which is driven by independent changes in the regional and global economy, or the likely market changes which may affect current transportation

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patterns, *but see, e.g.*, *id.* at 3-1122 (recognizing the "recent decline in downriver barge freight on the Snake River . . . has coincided with investments in shuttle rail facilities"). Once again, this unaccountably narrow framework creates a skewed analysis, as opposed to the full and objective analysis that NEPA requires.

141. NWF has addressed extensively the flaws in the agencies' analysis of the preferred alternative on ESA-protected salmon and steelhead populations, especially those originating from the Snake River Basin, in its description of the multiple failings of the 2020 BiOp. *See supra* at ¶¶ 79–93. Here, NWF focuses on a complementary set of flaws in the CRSO FEIS that support the skewed assessment of the effects of MO3, especially as compared to the preferred alternative. Of course, in light of decades of credible scientific analyses demonstrating that lower Snake River dam removal is the most effective measure available to restore salmon and steelhead populations, even the flawed comparison of effects on salmon and steelhead in the FEIS leads the agencies to conclude that MO3 would provide the largest increase in salmon and steelhead survival among the alternatives, including the preferred alternative.

142. As NWF has explained, one of the eight "resource purposes" the agencies identify for the CRSO FEIS is to "conserve fish and wildlife resources," including ESA-protected salmon and steelhead, CRSO FEIS at 1-4; *see also* 16 U.S.C. § 1532(3) (defining "conserve" as bringing a listed species to the point that it no longer requires the protection of the ESA). The CRSO FEIS subsequently and without explanation downgrades this purpose to merely "improving" juvenile and adult survival as compared to survival under the illegal no-action alternative. CRSO FEIS at 2-3. The agencies also equate this "improve" standard to compliance with the requirements of ESA Section 7(a)(2) to avoid jeopardy to listed species and destruction or adverse modification of their critical habitat. *But see supra* at ¶¶ 79–83 (explaining why their comparative approach fails to comply with the ESA). What the agencies do not address or explain is why their illegal "improve" goal is either appropriate or sufficient in light of other equally relevant requirements.

143. For example, they do not explain why their articulation of what it means to

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"improve" salmon and steelhead survival meets the requirements of other provisions of the ESA, like Section 7(a)(1), which instructs agencies to "utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the *conservation* of endangered species and threatened species," 16 U.S.C. § 1536(a)(1) (emphasis added). Nor do they explain why their "improve" standard complies with the requirement of the Northwest Power Act to "protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish," 16 U.S.C. § 839(6), and the further, longstanding articulation of that requirement by the Northwest Power Planning Council as smolt-to-adult returns rates that average 4% to achieve sustainable populations and consistently exceed 2% to ensure bare species survival. The point here is not that NEPA required the agencies to choose as a purpose of the CRSO FEIS the legal standard that would provide the highest level of protection for salmon and steelhead. The point is that NEPA requires agencies to explain their choices and support them with a rational analysis. Simply asserting one standard as a purpose (and even then restating it inaccurately and analyzing the ability of the alternatives to meet it incorrectly) while ignoring and not addressing other equally relevant and applicable standards that would require increased protection of the environment cannot satisfy NEPA's aims of a thorough analysis that fully informs the public and decision makers about their options and alternatives for managing the Columbia and Snake River dams.

144. The agencies compound this failure by: (1) evaluating the beneficial effects of MO3 for salmon and steelhead as a composite of many actions, some of which are harmful and reduce the benefits of this alternative; (2) employing arbitrary assumptions in some of their modeling for the survival impacts of factors like latent mortality in ways that make MO3 and the preferred alternative appear to have more similar survival effects than they do; and, (3) failing to employ available, high-quality scientific data to objectively and quantitatively describe the effects of the alternatives on salmon and steelhead. These and other flaws lead the agencies to overstate the alleged benefits of the preferred alternative for salmon and understate the benefits of MO3. *See supra* at ¶¶ 79–93 (describing these and other parallel flaws in the 2020 BiOp).

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145. The agencies' arbitrary and cursory treatment of climate change is another glaring flaw in the CRSO FEIS, one that also renders its conclusions arbitrary and unsupported. The agencies' primary analysis of the effects of the four multiple objective alternatives and the preferred alternative does not account for the advancing impacts of climate change, and instead is based on temperatures observed in the region between 1929 and 2008. *See* CRSO FEIS at 4-1. After this counterfactual discussion of the effects of the alternatives in a hypothetical non-warming world, the agencies then address climate change and its impacts separately, *see, e.g.*, CRSO FEIS at 4-1, 7-208, in an analysis that is arbitrary for at least the following key reasons.

146. First, the agencies fail to meaningfully discuss and disclose whether any alternative, including the preferred alternative, will meet even their narrowly defined project objectives in a warming world. For example, the agencies acknowledge that climate change could cause "moderate to severe" declines in salmon populations, CRSO FEIS at 4-34, and that climate change could offset any of the alleged positive impacts of the preferred alternative for salmon, *id*. at 7-210, as well as exacerbate the negative effects of the CRS and its operations on salmon, *e.g.*, *id*. at 4-35. In the agencies' counterfactual assessment of the effects of the preferred alternative *without* incorporating climate change, however, they conclude that it will have somewhere between a minor negative to significant positive impact on salmon. *Id*. at 7-92, 7-104. What they fail to discuss is whether they expect the preferred alternative to provide *any* benefit to salmon in a warming world, despite the fact that the information they provide calls into serious doubt that it could. Nor do the agencies consider or incorporate any additional mitigation measures for salmon, such that their action might still benefit salmon in a warming world. This is precisely the failure the Court identified in the analysis of climate impacts in the 2014 BiOp. *See NWF v. NMFS*, 184 F. Supp. 3d at 918–924. This approach is as arbitrary under NEPA as it is under the ESA.

147. Moreover, the agencies' separate assessment of climate impacts is cursory, truncated, and fails to incorporate credible and available information. One glaring example of the agencies' truncated and asymmetrical analysis is their decision to limit their analysis of

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climate impacts to 25 years, despite the fact that they analyzed other impacts, such as on electricity rates and irrigation, over 50 years. The agencies had available, reliable, and credible information demonstrating that climate impacts will worsen beyond their arbitrary 25-year time horizon but chose not to consider it. The agencies' inadequate response to specific comments on this asymmetry is that "a 50-year horizon was necessary to capture the socioeconomic and other impacts of the major infrastructure measures," but that data showing dramatic increases in warming beyond 25 years "was outside the horizon typically considered in NEPA analyses." CRSO FEIS at T-824.

148. The agencies also failed to rationally assess how the impacts of climate change will compound the harm caused by the CRS and its operations. For example, the agencies failed to rationally address climate impacts on freshwater temperatures and, in turn, the effects of those temperatures on salmon. The temperature increases caused by the CRS and its operations will compound the harm from the temperature increases caused by a warming climate. Similarly, the agencies failed to rationally address how climate impacts that degrade ocean habitat for salmon will compound the harm caused by the CRS and its operations, including changes in smolt fitness and timing of ocean arrival.

149. The agencies cannot excuse their failure to meaningfully address climate change by noting that there is some uncertainty regarding climate impacts in specific locations. *See, e.g.*, CRSO FEIS at T-824. The agencies had high quality, credible scientific information available that would have allowed them to provide a rational and substantial analysis of the effects of the alternatives in a warming world. *See, e.g.,* McCann *et al.*, Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye 2019 Annual Report, Chapter 2 at 47–53 & Table 2.10 (Dec. 2019). The hard look doctrine bars "[g]eneral statements about 'possible' effects and 'some risk' . . . absent a justification regarding why more definitive information could not be provided." *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d at 1380. By failing to adequately address climate impacts and failing to incorporate those impacts into their assessment of effects, the agencies have failed to take the

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"hard look" at environmental consequences that NEPA requires.

150. The agencies also fail to rationally evaluate cumulative impacts, and especially how these cumulative impacts will differ across alternatives, as NEPA requires. The agencies do list a number of cumulative impacts that will compound the harm to salmon from the CRS and its operations, including ongoing and increasing anthropogenic threats that range from roadway pollution to agricultural runoff. They also note that climate change and warming stream temperatures, which they arbitrarily discuss elsewhere in the CRSO FEIS, will contribute to these negative cumulative impacts. What the agencies fail to acknowledge or even consider is that these cumulative impacts will have significantly different effects on salmon under the different alternatives. Specifically, the agencies acknowledge that MO3, the alternative that includes breaching the four lower Snake River dams, would allow significantly greater numbers of salmon to spawn in the Snake River Basin. This basin includes millions of acres of high-elevation, pristine spawning and rearing habitat, much of it permanently protected as Wilderness, where stream temperatures will stay cooler longer even as the climate warms, and where polluted runoff from roadways and agricultural areas is virtually absent. Not only do the agencies fail to consider how the absence of cumulative threats in the Snake River Basin uniquely compounds the *benefits* of MO3, the agencies' explanation for why they need not consider these effects is arbitrary: they assert that the tributary habitat above the dams is outside the action area for the CRSO FEIS, *see* CRSO FEIS at T-822, despite the fact that the CRS and its operations directly impacts how many salmon are able to reach this habitat and despite the fact that the CRSO FEIS includes an area spanning seven western states in its analysis of the electricity rate increases it arbitrarily assigns to MO3. The agencies cannot rely on this lopsided definition of the action area to ignore the substantial difference in cumulative impacts across alternatives.

151. Finally, the agencies utterly fail to include any meaningful discussion of SRKW in the CRSO FEIS. The FEIS contains virtually no discussion of SRKW despite the fact that the Chinook runs directly impacted by CRS operations are a key source of prey for SRKW. Instead, the agencies summarily conclude that all of the alternatives will have negligible to minor effects

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on SRKW. While this conclusion is consistent with their arbitrary "not likely to adversely affect" finding for this species in the 2020 BiOp, *see supra* at ¶¶ 98–109 (discussing flawed SRKW analysis in the 2020 BiOp), it is no more rational under NEPA than it is under the ESA. Moreover, under NEPA, the agencies' analysis arbitrarily fails to acknowledge the significant benefits to SRKW prey availability from restoration of the lower Snake River under MO3. *Compare* CRSO FEIS at 3-789 to 3-790 (briefly and inaccurately describing effects of MO3 on SRKW) *with* Fish Passage Center, 2019 Comparative Survival Study Annual Report, Chap. 2 (Feb. 28, 2020) (predicting SARs and return abundances would be up to four times higher with dam removal). Finally, in response to detailed comments demonstrating the specific and significant impacts of the CRS and its operations on a critical prey base for SRKW, the agencies provided little more than general information on the species, CRSO FEIS at T-826–27, contrary to NEPA's requirement that agencies provide a rational and substantive response to significant comments.

CLAIMS FOR RELIEF

FIRST CLAIM FOR RELIEF
NOAA VIOLATIONS OF THE ESA AND APA

152. NOAA has violated the requirements of ESA Section 7 and its implementing regulations, and has arbitrarily, capriciously, without any rational basis, and in disregard of the best available scientific information concluded in the 2020 BiOp that the actions proposed by the Corps and BOR are not likely to jeopardize any listed species of salmon or steelhead or destroy or adversely modify their critical habitat, and are not likely to adversely affect Southern Resident killer whales. The defects in the 2020 BiOp include, but are not limited to, those described and referred to above. In addition, to the extent NOAA relies in the 2020 BiOp on the recently revised ESA consultation regulations, those regulations are arbitrary and contrary to law as applied in this case. NOAA's actions and omissions are arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with Section 7 of the ESA, 16 U.S.C. § 1536(a)(2), and its implementing regulations, and are reviewable under the APA, 5 U.S.C. §§ 701–706.

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SECOND CLAIM FOR RELIEF
THE CORPS' AND BOR's VIOLATIONS
OF THE ESA AND APA

153. The Corps and BOR have an independent and continuing legal duty to comply with the substantive requirements of ESA Section 7(a)(2) to avoid jeopardy and adverse modification of critical habitat without regard to whether they have received a biological opinion for their actions. The Corps and BOR may not meet their duty to comply with Section 7 by relying on an invalid opinion. *Stop H-3 Ass'n v. Dole*, 740 F.2d at 1460; *Res. Ltd. v. Robertson*, 35 F.3d at 1304. For at least each of the reasons described above, the Corps' and BOR's reliance on the 2020 BiOp in their 2020 ROD is arbitrary, capricious, an abuse of discretion, and in violation of ESA Section 7(a)(2).

154. The Corps' and BOR's actions and omissions also are arbitrary, capricious, and in violation of the ESA and its implementing regulations for at least the following additional reasons:

A. The Corps and BOR have not obtained a valid, complete Section 7(a)(2) consultation for operation of their projects and have not evaluated, proposed, or implemented further protective measures for ESA-listed species in order to avoid jeopardy and destruction and adverse modification of critical habitat.

B. The ESA requires the Corps and BOR to operate their projects in a manner that avoids harm to listed species pending compliance with the procedural requirements of Section 7(a)(2). The Corps and the Bureau have not developed any valid analysis or rationale of their own to establish that their actions comply with the requirements of ESA Section 7(a)(2). 16 U.S.C. § 1536(a)(2); *see also Greenpeace v. NMFS,* 106 F. Supp. 2d 1066 (W.D. Wash. 2000) (enjoining implementation of fishing management plans in specific areas pending completion of BiOp).

C. In addition to these violations of ESA Section 7(a)(2), BOR and the Corps are violating the supplemental protections afforded by ESA Section 7(d), 16 U.S.C. § 1536(d), by taking actions that may foreclose implementation of measures required to avoid jeopardy, and

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the requirements of ESA Section 7(a)(1), *id*. § 1536(a)(1), by failing to utilize their authorities for the conservation of threatened and endangered species.

155. Because the Corps and BOR have not obtained a valid, complete consultation, or taken any other appropriate steps to ensure that their operations will not harm ESA-listed species, the Corps and BOR are operating their projects in violation of Section 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2), and its implementing regulations, and Sections 7(a)(1) and 7(d) of the ESA, *id*. § 1536(a)(1) & (d).

156. In addition, to the extent the Corps and BOR rely on the recently revised ESA consultation regulations to conclude that their actions comply with the ESA, those regulations are arbitrary and contrary to law as applied in this case.

157. The Corps' and BOR's project operations and 2020 ROD are arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with the ESA and are reviewable under the ESA, 16 U.S.C. § 1540(g)(1), and the APA, 5 U.S.C. §§ 701–706.

THIRD CLAIM FOR RELIEF
THE CORPS' AND BOR'S VIOLATIONS OF THE NATIONAL ENVIRONMENTAL POLICY ACT

158. NEPA requires federal agencies to prepare an EIS in connection with all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). The CRSO FEIS fails to comply with the requirements of NEPA, its implementing regulations, and the relevant case law for reasons including, but not limited to, those described in the foregoing paragraphs of this supplemental complaint.

159. By their actions and inactions as alleged above, the Corps and BOR are currently violating the NEPA and its implementing regulations. The Corps' and BOR's actions and inactions are arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with the requirements of NEPA and its implementing regulations and are reviewable under the APA, 5 U.S.C. §§ 701–706.

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PRAYER FOR RELIEF

WHEREFORE, NWF respectfully requests that the Court:

1. Adjudge and declare that NOAA has violated ESA Section 7 and its implementing regulations by making no-jeopardy/no-adverse modification findings, and findings concurring in a not likely to adversely affect determination, in the 2020 BiOp that are arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with law;

2. Vacate and set aside the 2020 BiOp and the accompanying incidental take statement and permits and enjoin NOAA to notify the Action Agencies of these actions;

3. Adjudge and declare that BOR and the Corps have violated ESA Section 7(a)(2) and its implementing regulations by continuing to operate their projects in the Columbia and Snake River Basins without a valid biological opinion, by failing to ensure that these projects avoid jeopardy, by making irretrievable and irreversible commitments of resources before the conclusion of a valid consultation, and by failing to utilize their authorities to conserve threatened and endangered species, all in violation of the requirements of ESA Section 7, 16 U.S.C. § 1536, and that their actions are arbitrary, capricious, an abuse of discretion, and not in accordance with law;

4. Adjudge and declare that BOR and the Corps have violated ESA Section 7(a)(2) and its implementing regulations by continuing to operate their Columbia and Snake River projects without initiating and completing formal consultation with NOAA on the effects of these projects and their operations on endangered Southern Resident killer whales and without ensuring that those operations will not jeopardize the survival and recovery of this species;

5. Order the Corps and BOR to consult with NOAA pursuant to Section 7(a)(2) of the ESA on the effects of their project operations on Southern Resident killer whales and ensure, based on that consultation, that any actions will not jeopardize the survival and recovery of this endangered species;

6. Adjudge and declare that the Corps and BOR have violated NEPA by failing to prepare an environmental impact statement that complies with the requirements of NEPA and its

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implementing regulations;

7. Vacate the 2020 ROD and remand the CRSO FEIS to the Corps and BOR;

8. Grant NWF such preliminary and permanent injunctive relief as it may from time-to-time request and as may be necessary to protect the environment and ESA-listed species until the Court decides the merits of this case or the agency complies with the law;

9. Award NWF its reasonable fees, costs, expenses, and disbursements, including attorneys' fees, associated with this litigation; and

10. Grant NWF such further and additional relief as the Court may deem just and proper.

Respectfully submitted this 19th day of January, 2021.

/s/ Todd D. True
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