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UNITED STATES DISTRICT COURT
DISTRICT OF OREGON
PORTLAND DIVISION

NATIONAL WILDLIFE FEDERATION, et al.,

Plaintiffs,

v.

NATIONAL MARINE FISHERIES SERVICE, et al.,

Defendants.

Case No.: 3:01-CV-00640-SI

FEDERAL DEFENDANTS' CROSS-MOTION FOR SUMMARY JUDGMENT, AND MEMORANDUM IN SUPPORT OF CROSS-MOTION AND OPPOSITION TO PLAINTIFFS' MOTIONS FOR SUMMARY JUDGMENT

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AMIP	Adaptive Management Implementation Plan
APA	Administrative Procedure Act
R/S	returns-per-spawner
BiOp	Biological Opinion
BRT	Biological Review Team
BPA	Bonneville Power Administration
CVP	Central Valley Project
OA/EIS	Columbia River Salmon Flow Measures 1992 Options Analysis EIS
SOR EIS	Columbia River System Operation Review Final EIS
ESA	Endangered Species Act
EIS	Environmental Impact Statement
ERTG	Expert Regional Technical Group
FCRPS	Federal Columbia River Power System
FWP	Fish and Wildlife Program
HQI	Habitat Quality Improvements
ISAB	Independent Scientific Advisory Board
ISRP	Independent Scientific Review Panel
FR/EIS	Lower Snake River Juvenile Salmon Migration Final Feasibility Report/EIS
lambda	Median population growth rate
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWF	National Wildlife Federation
NPT	Nez Perce Tribe
OR	Oregon
PCEs	Primary Constituent Elements
RPA	Reasonable and Prudent Alternative
RM&E	Research, Monitoring, and Evaluation
RTC	Response to Comments
SARs	Smolt-to-Adult Returns
SRKW	Southern Resident Killer Whale
SBU	Survival Benefit Units
VARQ	Variable Discharge Flood Control
VSP	Viable Salmonid Population

ADMINISTRATIVE RECORD CITATION FORMAT

NOAA A1:234	National Marine Fisheries Service's ("NMFS") 2014 Administrative Record (ECF 1959). "A1" refers to the document number on the index, and "222" refers to the bates stamp number of the cited page(s).
2008 NOAA	NMFS's 2008 Administrative Record (ECF 1480)
2008 NOAA S	NMFS's 2008 Supplemental Administrative Record (ECF 1534)
2010 NOAA	NMFS's 2010 Administrative Record (ECF 1780)
Corps 123:4567	U.S. Army Corps of Engineers' ("Corps") 2014 Administrative Record (ECF 1959). "123" refers to the document number on the index, and "4567" refers to the cited bates stamp number(s).
2008 Corps	Corps' 2008 Administrative Record (ECF 1512, 1586)
2010 Corps	Corps' 2010 Administrative Record (1780)
USBR 1234:1234	U.S. Bureau of Reclamation's ("Reclamation") 2014 Administrative Record (ECF 1959). "1234" refers to the beginning bates stamp number on the index, and "1234" refers to the cited bates stamp number(s).
2008 USBR	Reclamation's 2008 Administrative Record (ECF 1512, 1586)
2010 USBR	Reclamation's 2010 Administrative Record (1780)

COMMONLY CITED ADMINISTRATIVE RECORD DOCUMENTS

NOAA B421	2007 BA; 2007 Biological Assessment (Action Agencies)
NOAA B422	2007 CA; 2007 Comprehensive Analysis (Action Agencies
NOAA B282	2008 SCA; 2008 Supplemental Comprehensive Analysis (NMFS)
NOAA B281	2008 BiOp; 2008 Biological Opinion (NMFS)
2008 NOAA C1155	2008 RTC; 2008 Response to Comments (NMFS)
NOAA B44	2009 Adaptive Management Implementation Plan
NOAA B286	2010 BiOp; 2010 Biological Opinion (NMFS)
NOAA C33559	2010 RTC; 2010 Response to Comments (NMFS)
NOAA A1	2014 BiOp; 2014 Biological Opinion (NMFS)
NOAA C34293	2014 RTC; 2014 Response to Comments (NMFS)
NOAA B47	2013 CE; 2013 Comprehensive Evaluation (Action Agencies)
NOAA B48	2014-2018 IP; 2014-2018 Implementation Plan (Action Agencies)
2014 Corps 11	CE/IP RTC; 2014 Response to Comments on CE/IP (Action Agencies

CROSS-MOTION FOR SUMMARY JUDGMENT

Federal Defendants, the National Marine Fisheries Service ("NMFS"),[1] *et al.*, file this cross-motion for summary judgment pursuant to Fed. R. Civ. P. 56(a). As explained in the accompanying memorandum, and as supported by the administrative records and supporting declarations, the Court should grant Federal Defendants' cross-motion and enter judgment dismissing these actions with prejudice.

MEMORANDUM IN SUPPORT OF CROSS-MOTION AND OPPOSITION TO PLAINTIFFS' MOTIONS FOR SUMMARY JUDGMENT

The Endangered Species Act consultation for the Federal Columbia River Power System at issue in this case constitutes among the most exhaustive and comprehensive consultations ever conducted. The 2008 Biological Opinion, as supplemented in 2010 and 2014, is the product of over nine years of study, review, and analysis by dedicated National Marine Fisheries Service scientists and experts, all focused on the singular goal of ensuring that the operation and maintenance of the FCRPS complies with the requirements of the ESA. The 2008 BiOp, as supplemented, is also the product of a highly collaborative and transparent consultation. Its development drew upon the scientific and technical expertise of fisheries scientists, biologists, engineers, and other technical experts from the three Action Agencies (the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and Bonneville Power Administration), the States of Washington, Idaho, Montana, and Oregon, and more than nine interested sovereign Indian tribes. In many cases, the views of independent scientific organizations also were solicited on difficult technical and scientific issues. And despite not being required under the ESA, the BiOps and related agency documents went through public processes, including public meetings and opportunities for all interested stakeholders (including Plaintiffs) to review draft products and provide NMFS and the agencies with any information and analyses they deemed relevant.

NMFS's initial steps in this consultation process – from 2005 to 2008 – resulted in a

[1] The Department of Commerce's National Oceanic and Atmospheric Administration ("NOAA") includes NMFS. NMFS is also sometimes referred to by its common name, "NOAA Fisheries." Here, we use the official name – NMFS.

comprehensive scientific analysis underlying three sets of actions affecting listed salmonids in the Columbia and Snake River basins: operation and maintenance of the FCRPS; harvest management under *United States v. Oregon*; and Reclamation's operation and maintenance of the Upper Snake Projects. This comprehensive analysis gave rise to the 2008 BiOp, where NMFS sets forth, in detail, its findings and explanations for why the continued operation of the FCRPS is not likely to jeopardize the continued existence of the listed species. The Reasonable and Prudent Alternative ("RPA") that underlies this determination was developed using the best available science and data and provides an extensive suite of protective operations and mitigation measures that address limiting factors, reduce threats, and improve survival through all life-history stages of salmon and steelhead. *See* ECF 1989 at 9-18.

Since 2008, NMFS's scientists have continued to test and analyze the assumptions and data used in the 2008 BiOp. In 2009, the Obama Administration undertook a review of the 2008 BiOp, led by then-Administrator of NOAA, Dr. Jane Lubchenco. In that review and through the Adaptive Management Implementation Plan, NMFS addressed the uncertainties in science, accelerated RPA implementation, and reviewed and re-affirmed the scientific basis for the 2008 BiOp. In 2010, in coordination with the States and Tribes, NMFS confirmed that the 2008 BiOp was not likely to jeopardize the continued existence of any ESA-listed species or adversely modify their critical habitat, as required under the ESA.

After Plaintiffs' last challenge, the Court remanded the 2008 and 2010 BiOps to NMFS without vacatur, to address issues related to NMFS's assessment of habitat mitigation actions during the 2014 to 2018 period.[2] *Nat'l Wildlife Fed'n (NWF) v. NMFS*, 839 F.Supp.2d 1117 (D. Or. 2011). The Court did not reach any of the other issues raised by Plaintiffs at the time, and the remand order focused the agencies on implementing the RPA and correcting the single deficiency identified in the order. *Id*. at 1129-30. In response, NMFS's scientists not only addressed the habitat issues raised by the Court, but also conducted a two-year review of the

[2] The term of this BiOp runs through 2018. The Action Agencies expect to reinitiate formal consultation in 2017, in order to complete a new BiOp in 2018. 2014 BiOp at 40.

scientific and technical underpinnings of the 2008 BiOp and this RPA. At the conclusion of the review, in 2014, NMFS again determined that the 2008 BiOp remained scientifically and legally sound. No relevant factor was overlooked, and no relevant science was ignored. In short, NMFS has faithfully applied the ESA.

Plaintiffs no doubt would have preferred a different conclusion, and they have different opinions about the science. Perhaps recognizing that a difference of opinion is not a sufficient basis to overturn NMFS's action, Plaintiffs instead offer legal principles and standards that run counter to the ESA and Ninth Circuit law, and seek to graft into the statute their "own notion of which procedures are 'best' or most likely to further some vague, undefined public good." *Lands Council v. McNair*, 537 F.3d 981, 993 (9th Cir. 2008) (*en banc*) (quotation omitted). Plaintiffs' tactic is evident in their challenges to NMFS's jeopardy and adverse modification analysis, where they improperly attempt to shift the statutory focus from one that prohibits those actions that cause jeopardy, to one that proactively requires the agencies to guarantee recovery. It is also evidenced by their determined disregard for the significant survival improvements achieved for fish at the dams and throughout their habitats since at least 2001, when NWF filed this lawsuit.

These arguments and tactics should not succeed. NMFS applied the ESA in a precautionary manner, adopting methodologies to analyze jeopardy and adverse modification that ensure the ESA's requirements are satisfied. It also applied conservative assumptions throughout its analysis and adopted an RPA that directly addresses and responds to the survival and recovery needs of the fish. This is why Washington, Montana, Idaho, the Yakama, Warm Springs, Umatilla, Colville, Kootenai Tribe of Idaho, and Salish-Kootenai tribes, as well as numerous other stakeholders support this BiOp. It is also why NMFS has concluded that this RPA "represents a significant step forward for listed salmon and steelhead in the Columbia and Snake River basins."[3] The BiOps comply with the law and should be upheld.

[3] 2010 NOAA C220:2 (Dr. Jane Lubchenco, former NOAA Administrator).

BACKGROUND[4]

The FCRPS consists of 14 multi-purpose dams and related facilities constructed between 1938 and 1975 that contribute to the vitality of the Pacific Northwest. Congress explicitly directed the Corps and Reclamation to construct and operate these dams and reservoirs for a multitude of purposes, including: flood risk management throughout the Columbia River basin, including Portland, Oregon, and Libby, Montana; generation of renewable energy to millions of the Pacific Northwest's residents; conservation of fish and wildlife resources; irrigation of millions of acres of land; commercial navigation to bring products to market; recreation; municipal and industrial water supply; and other purposes. *See generally* ECF 1989 at 6-9.

The dams and related projects throughout the basin adversely affect fish and wildlife resources. Due to a variety of factors, thirteen species of Columbia Basin salmon and steelhead are now listed as either threatened or endangered under the ESA. 2008 BiOp at 3-3–3-4 (NOAA B281). When salmon were first listed in the early 1990s, the species' status was dire; they "continued to steadily decline," which led NMFS to list additional salmonid species. *Am. Rivers v. NMFS*, Civ. No. 96-384-MA, 1997 WL 33797790, at *4 (D. Or. Apr. 3, 1997). The situation prompted Judge Marsh to issue a call to action in 1994, noting that the existing "situation literally cries out for a major overhaul." *Idaho Dep't of Fish & Game (IDFG) v. NMFS*, 850 F.Supp. 886, 900 (D. Or. 1994). The federal agencies responded. In just one year (by 1995), the agencies "substantially alter[ed] FCRPS operations," and "increase[d] the priority for the use of reservoirs for fish flow augmentation relative to power production.'" *Am. Rivers*, 1997 WL 33797790, at *7. The 1995 BiOp adopted other significant changes, "particularly with respect to in-river migratory conditions and a movement towards significant structural improvements." *Id.* at *9. The overhaul of the system to benefit fish has continued since that time. *See* NOAA B421:43754-83; Graves Decl. ¶ 16 & Fig. 4-5 (overhaul has "substantially improved migration

[4] The applicable statutory and regulatory background, as well as further detailed factual background, are set forth in prior filings, which are incorporated by reference. *See, e.g.*, ECF 1559, 1645, 1678, 1712, 1733, 1762, 1806, 1838, 1989.

conditions and survival rates are higher and generally more consistent between years").[5]

The 2008, 2010, and 2014 BiOps continue this direction and improve it through more aggressive implementation of science-based RPA actions throughout the Columbia River basin. NOAA B281:27401-98 (RPA Table); NOAA B286:30463-65 (2010 RPA amendments); 2014 BiOp at 37-40 (2014 RPA amendments). In fact, this RPA, as amended, represents the most comprehensive, coordinated set of FCRPS operations and mitigation actions developed to benefit fish under any FCRPS BiOp to date. These BiOps were the product of thousands of hours of study, analysis, testing, review, and consultation (in person and in writing) by and with dedicated scientific and technical experts throughout the region, including independent scientific bodies, on a variety of issues. NMFS's development of the 2008, 2010, and 2014 BiOps spanned two different Administrations and, for the first time in the extended history of the FCRPS litigation, the BiOps are supported by the majority of States, Indian tribes, and other stakeholders in the Region. *See* ECF 1989 at 9-18.

The BiOps accomplish these objectives through an extensive suite of 74 RPA actions addressing all factors that affect salmonid survival and recovery – hydrosystem, habitat (including predation), harvest, and hatcheries. *See* NOAA B281:27401-98 (RPA table). This "all-H" approach is the same approach taken in recovery plans and responds to limiting factors affecting the survival and recovery of the ESA-listed salmonids in all life stages, not solely the hydrosystem as Plaintiffs myopically would have it. *See*, *e.g.*, 2008 NOAA S78:10-11 ("A successful recovery strategy must address hydro, habitat, hatchery, harvest, and predator mitigation measures."); NOAA B413:42328 ("Recovery of listed species requires implementation of actions within all sectors, including" harvest, hatcheries, hydro, and habitat, and not by "implementing actions within only one sector (i.e., Habitat).").

The hydrosystem appropriately remains the primary focus of this "all-H" approach. 2014

[5] Oregon and its declarant provide a misleading, and often inaccurate, assessment of the FCRPS impacts on listed salmonids. Mr. Graves and Dr. Toole have corrected these errors. Graves Decl. ¶¶ 9-19; Toole Decl. ¶¶ 44-51.

BiOp at 35 ("The first focus of the RPA is for improving the survival of salmon and steelhead migrating in the mainstem Columbia and Snake rivers."). Thus, the RPA contains several actions directed at modifying dam structures and operations at fish passage projects to improve fish survival, combined with "storage and release of water to maintain adequate river migration flows." *Id*. at 35 (RPAs 4-33, 50-55). Safe passage and enhanced migratory conditions also are addressed by an extensive program to reduce piscivorous avian and marine mammal predation. *Id*. (RPAs 43-49, 66-70).

The RPA also devotes substantial resources to "enhancing the function of upriver habitat where salmon spawn and rear, as well as down river estuary habitat where salmon transition to the ocean environment." 2014 BiOp at 36. This objective is achieved through the Action Agencies' implementation of RPA actions 34-37, 56-61, which require the agencies to rigorously select and implement projects, using expert-review processes, to meet specified biological performance standards. NOAA B281:27444-46. This is one of the largest coordinated habitat restoration programs in the Nation for remediating factors limiting fish survival.[6] And the RPA includes measures addressing hatchery and harvest effects on the species (RPAs 39-42, 62-65).

Moreover, and contrary to Plaintiffs' narrative, success of the RPA is not left to chance. RPA implementation is accompanied by a massive program of planning, reporting, research, and progress monitoring that aids in ensuring the RPA program is effective. 2014 BiOp at 36. These research, monitoring, and evaluation ("RM&E") actions highlight one of the many precautionary aspects of this BiOp. Under the RPA, implementation is guided by clear and defined biological performance standards that are evaluated throughout the term of the BiOp. NOAA B281:27472-73, 27468-98; 2014 BiOp at 433. If data reveal that actions are not having or are not likely to cause the intended biological benefit, the agencies have committed to adjust implementation accordingly. 2010 NOAA C2749:58924. This adaptive management provides assurances that the

[6] While we can describe this effort, a picture is worth a thousand words. The maps included on the Columbia Basin Fish & Wildlife Program website help convey the actual scope and intensity of these tributary habitat restoration efforts. *See* Tehan Decl. ¶ 9 (Maps 1 & 2).

predicted benefits of the RPA are realized, which is why the National Academy of Sciences' National Research Council held out the FCRPS BiOp as a model for resolving uncertainty through adaptive management.[7]

The Action Agencies have been implementing, and will continue to implement, these BiOps through 2018. But the record shows that the RPA has already yielded key results. Since 2008, juvenile fish travel times past the eight lower Snake and lower Columbia River dams "are currently faster than they were in the early 1970s period when only four dams were installed in the mainstem river." 2014 BiOp at 441; NOAA B263:22216-17 (Muir & Williams 2012). Estimates show material improvement in dam passage survival. 2014 BiOp at 359-60; NOAA B47:3298. And "reach" survival – survival past the mainstem FCRPS projects and reservoirs – has improved dramatically: SR steelhead survival past eight mainstem dams, for example, greatly exceeds the improvements NMFS predicted would be reached by 2018. 2014 BiOp at 364 (Fig. 3.3-3), 360-66. "[P]er kilometer, these survival rates are approaching those estimated in several free-flowing river systems." *Id*. at 362.[8]

While salmonid abundance (the number of adults returning to spawning areas) is highly variable and heavily influenced by ocean conditions, the FCRPS is now being operated in a way that allows these species to return in record numbers when ocean conditions are favorable. For example, the number of returning, naturally produced adult SR fall Chinook now consistently exceeds the 3,000 fish threshold identified for biological recovery. 2014 BiOp at 80; NOAA B47:3275. By 2012, adult returns were over four times higher than the recovery thresholds – an

[7] *See* A Review of the use of Science and Adaptive Management in California's Draft Bay Delta Conservation Plan at 24 (2011), *available at* http://calsport.org/doc-library/pdfs/138.pdf.

[8] Oregon's brief is misleading on these issues, as it equates the 2008 BiOp's incidental "take" limits with mortality caused by the FCRPS. OR SJ at 6-9 (ECF 1985). Those limits are predictions; they do not represent data on current survival and reflect all mortality occurring in the migration corridor. 2008 BiOp at 14-21–14-29. Even under a free-flowing river system, there is considerable natural mortality for juvenile migrating salmonids. *See, e.g.*, NOAA B263:22216. Thus, Oregon's attempts to attribute all in-river mortality to the FCRPS are not accurate.

important success even Plaintiffs recognize. *Id*.[9] Similar trends exist for the other listed species, as recent abundance has increased for all Chinook and the majority of steelhead populations. NOAA B47:3274-81; 2014 BiOp at 79-83. SR sockeye also significantly increased to a high of nearly 2,500 returning adults under this RPA. NOAA B47:3276-77.

This progress is due to the combined efforts of the Federal agencies, states, tribes, and regional partners working to make this RPA a success. The Fish Accords, backed by nearly one billion dollars in dedicated funding, are facilitating partnerships and directing resources where they are most beneficial. *See* ECF 1989 at 13. Sovereigns are providing technical, scientific, and policy input on all facets of RPA implementation. And any significant system operation or configuration action is scrutinized by the region's experts in the many scientific or technical forums. *See* ECF 1989 at 9-18. These partnerships, this coordination, and the many expert reviews provide the foundation for this RPA, and any fair reading of this record shows that the FCRPS has undergone a major overhaul to improve the survival and recovery of the fish. These facts dispel any notion that the RPA is limited to "what the establishment is capable of handling with minimal disruption." NWF SJ at 1-2 (quoting *IDFG v. NMFS*, 850 F.Supp. at 900).

STANDARD OF REVIEW

The APA, 5 U.S.C. § 702, governs the Court's review and requires the Court to evaluate whether the agency action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. 706(2)(A). *San Luis & Delta-Mendota Water Auth. v. Locke* ("*Locke*"), 776 F.3d 971 (9th Cir. 2014) (reviewing biological opinion). As the Ninth Circuit explained, "[i]t is not the reviewing court's task to 'make its own judgment about' the appropriate outcome." *Id*. at 994. Rather, the Court's "'responsibility is narrower: to determine whether the' agency complied with the procedural requirements of the APA." *Id*. Thus, courts "will 'sustain an agency action if the agency has articulated a rational connection between the

[9] *See* Oregon Press Release, www.dfw.state.or.us/news/2014/august/081414b.asp ("After decades of low numbers, fall Chinook returns to the Snake River have rebounded in recent years to the point that fishing can now be allowed.").

facts found and the conclusions made.'" *Id*. (citation omitted). Further, NMFS's analysis of a species' survival or "potential for recovery 'involves a great deal of predictive judgment. Such judgments are entitled to particularly deferential review.'" *Salmon Spawning & Recovery Alliance v. NMFS*, 342 Fed. Appx. 336, 339 (9th Cir. 2009) (quoting *Trout Unlimited v. Lohn*, 559 F.3d 946, 959 (9th Cir. 2009)).

ARGUMENT

I. NMFS PROPERLY CONCLUDED THAT THE RPA IS NOT LIKELY TO JEOPARDIZE LISTED SALMONIDS.

A. NMFS's Jeopardy Analysis Is Fully Consistent With The ESA.

Under Section 7(a)(2), NMFS must analyze whether the action in question is "likely to jeopardize the continued existence of" a listed species. 16 U.S.C. § 1536(a)(2). This phrase is not defined by the statute. Rather, NMFS's implementing regulations define "jeopardize the continued existence of" to mean "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." 50 C.F.R. § 402.02. That a particular activity may adversely affect a species or "take" members of the species does not give rise to jeopardy. 16 U.S.C. § 1536(b)(4). Rather, Section 7(a)(2) prohibits those actions that cause the species "some new risk of harm," for instance, actions that "will tip a species from a state of precarious survival into a state of likely extinction." *NWF v. NMFS*, 524 F.3d 917, 930 (9th Cir. 2008).

"[T]he ESA does not prescribe how the jeopardy prong is to be determined," *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, 378 F.3d 1059, 1066-67 (9th Cir. 2004), and NMFS "has discretion to make this determination on the basis of its own expertise," *Oceana, Inc. v. Pritzker*, -- F.Supp.3d --, 2014 WL 7174875, at *11 (D.D.C. Dec. 17, 2014). NMFS exercised this discretion by adopting a five-step framework to analyze jeopardy, as applied to the FCRPS. 2008 BiOp at 1-10. Under this framework, NMFS analyzes the past, present, and future life-cycle status of the species, and NMFS asks "whether the species can be expected to survive with an adequate potential for recovery (*e.g*. trending toward recovery) under the effects of the

action, the effects of the environmental baseline, and any cumulative effects." 2008 BiOp at 1-10. This is a "forward looking" inquiry that identifies the "resulting survival and recovery potential" of the species following RPA implementation. *Id*. at 1-10, 1-12. At the population level, a high probability of continued survival is indicated where short-term (24 year) extinction risk is either below or reduced to sufficiently low levels (5% or less), and a trend toward species' recovery is indicated, in part, when productivity levels are either above or improved to levels greater than 1.0.[10] *Id*. at 7-5, 7-14–7-15, 7-22–7-26; *see also* 2014 BiOp at 45-66 (explaining metrics and considerations applied in its analysis).

NMFS's methodology is reasoned. To ensure that the action does not "reduce appreciably" the species' likelihood of survival and recovery, 50 C.F.R. § 402.02, NMFS's analysis conservatively addresses whether, considering all aggregate factors affecting the species, the RPA is likely to meaningfully improve the species' survival and recovery prospects. The ESA imposes a "flexible standard for the consulting agency" to determine whether an action is likely to jeopardize listed species, and NMFS's approach—ensuring that there will be improvements to the species' likelihood of survival and recovery—falls comfortably within this standard. *Locke*, 776 F.3d at 1002.

1. NMFS Acted Reasonably In Declining To Adopt Plaintiffs' Preferred Construction Of The Jeopardy Inquiry.

In reviewing NMFS's interpretation, the Court "must give substantial deference to [NMFS's] interpretation of its own regulations." *Natural Res. Def. Council v. EPA*, 638 F.3d 1183, 1192 (9th Cir. 2011) (citation omitted). The Court's "task is not to decide which among several competing interpretations best serves the regulatory purpose. Rather, the agency's interpretation must be given controlling weight unless it is plainly erroneous or inconsistent with the regulation." *Id*. "This broad deference is all the more warranted when, as here, the regulation concerns a complex and highly technical regulatory program, in which the identification and

[10] For productivity metrics, a value of 1.0 indicates a population that is replacing itself. 2008 BiOp at 7-24. At values greater than 1.0, "the population is surviving at a rate that leads to increasing populations." *Id*. at 7-23-7-24.

classification of relevant criteria necessarily require significant expertise and entail the exercise of judgment grounded in policy concerns." *Id*.

Plaintiffs ignore this standard. They complain that NMFS's jeopardy approach is arbitrary because NMFS did not address the purported "plain language" of the regulations – that the agency must know when and how recovery will be achieved. NWF SJ at 6-7 (ECF 1976). But the regulation says no such thing: it does not require NMFS to identify when or how recovery will be achieved. Instead, it speaks in terms of likelihoods; whether the action is expected to "reduce appreciably the likelihood of both the survival and recovery of a listed species." 50 C.F.R. § 402.02. Likelihoods are probabilities, and evaluating the probability that survival or recovery prospects will be reduced does not depend on defining "endpoints." NWF SJ at 6. NMFS's analysis here demonstrates why.

In the BiOps, NMFS examines the characteristics of a "viable salmonid population" ("VSP"), which include measures of abundance, productivity, spatial structure, and diversity. 2008 BiOp at 7-22, 7-35–7-37; 2014 BiOp at 48; NOAA B250 (explaining VSP factors).[11] These factors are relevant to evaluating the species' survival and recovery, and they are the same factors prescribed in NMFS's regulation for determining whether an action jeopardizes listed species. 50 C.F.R. § 402.02 (actions appreciably reduce the likelihood of survival and recovery "by reducing the reproduction, numbers, or distribution of that species"). In examining these factors, NMFS determines how survival and recovery prospects (probabilities) change. For example, an action that improves productivity from 0.5 (a declining population) to over 1.0 (a growing population) changes that population's trajectory, increases its numbers, reproduction, and distribution, and improves the species' recovery prospects. *See* 2014 BiOp at 48. This logical

[11] A viable salmonid population, or "viability," is indicative of species' recovery. 16 U.S.C. § 1532(3) (defining "conservation," or recovery); 2008 SCA at 4-10; *see also* Toole Decl. ¶¶ 29-32. The VSP factors and viability are used in other contexts, such as by Technical Recovery Teams ("TRT") convened to develop recovery criteria and recovery-planning assessments under ESA Section 4. 2008 SCA at 4-9; NOAA B175-76 (Interior Columbia TRT ("ICTRT") viability assessments). NMFS's BiOps consider the same factors and data sources as the TRTs, but answer a different question – whether the action jeopardizes listed species. *See* 2008 BiOp at 7-7.

approach more than fully comports with NMFS's regulation.

Nonetheless, Plaintiffs contend that the regulation unambiguously requires NMFS to define when recovery will occur before it can determine that an action is not likely to appreciably reduce survival and recovery. Yet, Plaintiffs' argument is not grounded in the plain language of the regulation, but, rather, on inference. And it is certainly not compelled by the regulation. But, even assuming *arguendo* that Plaintiffs' reading of the regulation was a plausible one, NMFS's view that it does not necessarily need to know when a species will achieve recovery in order to know that the actions being taken will not "appreciably reduce" recovery is reasonable. *See* 2008 Toole Decl. ¶¶ 10-25 (ECF 1566). That is all that is required. *See NRDC v. EPA*, 638 F.3d at 1196 (rejecting challenge where "an alternative reading to the agency's interpretation is not 'compelled by the regulation's plain language'") (citation omitted).

In any event, Plaintiffs' preferred approach has been rejected by the Ninth Circuit under similar circumstances. *See Home Builders Ass'n v. FWS*, 616 F.3d 983, 989 (9th Cir. 2010) ("[T]here is no reason why [the agency] cannot determine what elements are necessary for conservation without determining exactly when conservation will be complete."). Plaintiffs also misstate the inquiry as whether a species is "off track to achieve recovery," NWF SJ at 10, as the relevant inquiry is whether the action "causes some deterioration in the species' pre-action condition," *NWF v. NMFS*, 524 F.3d at 930.[12] In effect, Plaintiffs are attempting to incorporate Section 4's recovery planning requirements, which entail a determination of when and how recovery will be attained, into Section 7(a)(2). 16 U.S.C. § 1533(f)(1)(B). The Ninth Circuit has rejected these arguments as well. *NWF v. NMFS*, 524 F.3d at 936 (improper to import the

[12] Plaintiffs rely on the Ninth Circuit's statement that "NMFS inappropriately evaluated recovery impacts without knowing the in-river survival levels necessary to support recovery." NWF SJ at 7 (quoting *NWF v. NMFS*, 524 F.3d at 936). Knowing the conditions (in-river survival levels) that "support" recovery, however, is not the same thing as defining endpoints. As the Court clarified, "[i]t is only logical to require that the agency know roughly at what point survival and recovery will be placed at risk before it may conclude that no harm will result from 'significant' impairments to habitat that is already severely degraded." 524 F.3d at 936. NMFS performed this inquiry, evaluating the requirements for recovery (VSP factors) and points of risk (more than a low short-term risk of extinction, populations that are not growing). 2008 BiOp at 7-5; 2014 BiOp at 47-48, 64-66. Thus, *NWF v. NMFS* does not support Plaintiffs' position.

"ESA's separate recovery planning provisions into the section 7 consultation process"); *Home Builders Ass'n*, 616 F.3d at 990 (recovery planning requirements cannot be inserted into "a completely different part of [the] ESA;" if Congress intended that result, "it would have said so"). Nor can Plaintiffs distinguish other Ninth Circuit cases upholding NMFS's BiOps where their preferred "plain language" inquiry did not occur. *See, e.g.*, *Locke*, 776 F.3d 971.

Plaintiffs' new-found affinity for NMFS's 2000 BiOp, which they equate to their preferred approach, does not undermine NMFS's analysis. NWF SJ at 7-8.[13] In 2000, NMFS addressed whether there is an "adequate potential to recovery" by, in part, assessing probabilities of reaching interim recovery abundance levels in 48 and 100 years. NOAA B275:24303, 24447. To evaluate probabilities of reaching recovery within a time period, NMFS had to consider RPA implementation "combined with other ongoing and anticipated measures in the Columbia River basin." *Id*.:24552; NOAA B275:24302 ("A time period for recovery is reasonable depending on the time requirements for implementation of the measures [in a recovery plan]"). This Court, however, found that NMFS's reliance on future actions in its jeopardy analysis was unlawful. *NWF v. NMFS*, 254 F.Supp.2d at 1213-15. Following the Court's opinion, NMFS explained that it could no longer make those assumptions needed to ascertain probabilities for reaching recovery by a date-certain, and it altered its analysis accordingly.[14] 2008 NOAA B343:3; 2008 BiOp at 1-6; 2008 NOAA C1155:3. NMFS's decision is reasoned, fully explained, and complies with the law. *FCC v. Fox Television Stations*, 556 U.S. 502, 514-15 (2009).

2. NMFS Rationally Addressed "Recovery" In Its ESA Analysis.

Plaintiffs also mischaracterize NMFS's analysis of recovery in the 2008 and 2014 BiOps. They argue that NMFS's methodology asks only whether there are "improvements" to a species, without considering "recovery." NWF SJ at 10-11 (relying on *ALCOA v. Bonneville Power*

[13] Plaintiffs challenged the 2000 BiOp claiming it, too, was unlawful. *See* ECF 1, 282, 370.

[14] NMFS did not depart from the 2000 methodology in its entirety. In 2008, NMFS used the same five-step framework, asked "whether the species can be expected to survive with an adequate potential for recovery," and evaluated whether populations are replacing themselves and growing. NOAA B275:24299, 24305; 2008 BiOp at 1-10.

Admin., 175 F.3d 1156, 1162 n.6 (9th Cir. 1999)). Of course, improvements to a species' status can inform a species' prospects for recovery. However, contrary to Plaintiffs' narrative, NMFS did not simply equate any species improvement with improved recovery prospects.

First, NMFS's consideration of the prospects for recovery were informed by, *inter alia*, a full consideration of the VSP factors. 2008 BiOp at 7-22; 2014 BiOp at 48. Those factors extend far beyond simply equating any measurable improvement with improved recovery. *Id*. Second, NMFS's population-level analysis proves it did not assess "status" improvements alone. 2008 BiOp at 7-11–7-12; 7-22–7-29. For example, if a population's productivity merely increased from 0.5 to 0.51, NMFS would *not* find that this "improvement" indicates increased recovery potential. Instead, NMFS used prospective productivity goals greater than 1.0, because that degree of improvement meaningfully changes the species' likelihood of recovery. 2014 BiOp at 48; 2008 NOAA C1155:9-10; NOAA B275:24305 ("[A]t a minimum, a population must be increasing at least slightly to recover"). Combined with evaluating the VSP factors, this analysis shows that NMFS considered recovery, as required. *See NWF v. NMFS*, 524 F.3d at 932-33.[15]

In short, Plaintiffs' "recovery" arguments are premised on straw men concerning the proper legal standard and the record, rather than the inquiry of whether NMFS properly determined that this RPA "will not appreciably reduce the odds of success for future recovery planning, by tipping a listed species too far into danger." *NWF v. NMFS*, 524 F.3d at 936. While Plaintiffs may desire a different approach, an action "need not boost the [species'] chances of recovery; NMFS must only determine those chances are not 'appreciably' diminished by the plan." *Salmon Spawning & Recovery Alliance*, 342 Fed.Appx. at 338; *Cascadia Wildlands v. Thrailkill*, -- F.Supp.3d --, 2014 WL 4724855, at *13 (D. Or. Sept. 23, 2014) (Section 7(a)(2) is not concerned with "whether that federal action would itself implement or bring about

[15] The Nez Perce's related argument that NMFS entirely ignored recovery is equally misplaced. NPT SJ at 6 (equating the Consultation Handbook's reference for "retaining the potential for recovery" with NMFS's BiOp analysis). As shown above, NMFS's recovery analysis is far broader than simply asking whether recovery potential will be "retained." Moreover, that there is some overlap in the analysis of survival and recovery does not show recovery was ignored. *NWF v. NMFS*, 524 F.3d at 932 n.11 (explaining overlap in concepts of survival and recovery).

recovery"). Because NMFS's analysis focuses on whether the RPA will improve (and therefore not appreciably reduce) recovery prospects, its approach complies with the ESA. *See, e.g.*, *Cabinet Res. Grp. v. FWS*, 465 F.Supp.2d 1067, 1082-83 (D. Mont. 2006) (concluding that "FWS satisfied its legal obligation" under Section 7(a)(2) even where the action does "slightly more for recovery and survival than the status quo").

B. NMFS's Jeopardy Analysis Is Scientifically Sound.

In a BiOp, NMFS must use the "best scientific and commercial data available," even if that information is imperfect or uncertain, 16 U.S.C. § 1536(a)(2); *Locke*, 776 F.3d at 994-95, and its choice of scientific methodologies in conducting a jeopardy analysis is entitled to substantial deference, *San Luis & Delta-Mendota Water Auth. v. Jewell* ("*Jewell*"), 747 F.3d 581, 618 (9th Cir. 2014); *Lands Council*, 537 F.3d at 911 (noting "well-established law concerning the deference [courts] owe to agencies and their methodological choices"). Thus, courts will "reject an agency's choice of a scientific model only where the model bears no rational relationship to the characteristics of the data to which it is applied." *Locke*, 776 F.3d at 994. Here, NMFS was required to make decisions on imperfect and sometimes uncertain science. However, its choice of methodology was well explained and well within its considerable discretion in implementing the ESA.

NMFS undertook a rigorous qualitative and, where empirical data was available, quantitative analysis of the species' past, present, and prospective life-cycle performance. 2008 BiOp at 7-3–7-52 (explaining analytical methods).[16] First, NMFS evaluated empirical data on the performance of the species during the "base" period – generally 1980 through 2000 brood years. *Id*. at 7-5; 2014 BiOp at 23 (a brood year is complete when all progeny of spawning adults return as adults to spawn). Second, NMFS assumed that the base conditions and species' status will

[16] Plaintiffs primarily focus on NMFS's quantitative analysis for several Interior Columbia species. Thus, our discussion of NMFS's methodology similarly focuses on this analysis, where NMFS considered four metrics: short-term (24 year) extinction risk; average returns-per-spawner ("R/S"); median population growth rate (lambda); and the Biological Review Team ("BRT") abundance trend. 2014 BiOp at 54-66 (explaining each metric). These are life-cycle metrics, which means they capture all sources of mortality and effects occurring to salmonids. *Id*.

continue "unless something affecting survival or reproduction of the population changes." 2008 BiOp at 7-11–7-12. It therefore analyzed the best available scientific evidence to determine how management and RPA actions (*e.g.*, dam improvements and operations) and other factors (*e.g.*, predation, harvest) are expected to change the species' past performance. *Id*. at 7-11–7-12, 7-37–7-49 (methods for the "base-to-current" and "current-to-prospective" analysis); 2014 BiOp at 183.[17] Third, NMFS examined qualitative factors, like freshwater climate impacts, that influence the species' future status under the RPA. 2008 BiOp at 7-34–7-37.

NMFS used this combined quantitative and qualitative analysis to: (1) evaluate the changes to base period conditions that would be indicative of improving survival and recovery prospects (less than 5% extinction risk and greater than 1.0 productivity levels at the population level), *see* 2008 BiOp at 8.2-33–8.2-38 (summary of analysis for SR fall Chinook); (2) judge the efficacy of the RPA in meeting these goals, *id*. at 7-5, 8.2-35 (Table 8.2.2-4) (SR fall Chinook gaps); and (3) determine whether, at higher organizational levels (major population groups and listed species), life-cycle performance would improve under the RPA to ensure the species' survival with an adequate potential for recovery, *see, e.g.*, *id*. at 8.2-26–8.2-29 (SR fall Chinook). NMFS appropriately used qualitative and, where available, quantitative data in its analysis. The end result is a well-reasoned assessment of the aggregate conditions facing the listed salmonids, sufficient to determine whether the species' chances for survival and recovery will be improved under this RPA. *See, e.g.*, *id*. at 8.2-32.

1. NMFS's Quantitative Analysis And Treatment Of Uncertainty In The 2008 BiOp Is Reasoned.

Plaintiffs take issue with NMFS's approach, flyspecking various points of disagreement along the way. However, their claims fail because NMFS rationally exercised its expertise in determining what data and analysis best informs an assessment of the past, current, and

[17] This analysis includes the pessimistic assumption that the base period ocean conditions (1980-2001) will persist. *Id*. at 7-12–7-13. Ocean conditions have a profound effect on life-cycle survival, 2008 NOAA S78:7, and base period ocean conditions were dominated by warm (unfavorable) conditions for salmonids, 2008 BiOp at 7-12–7-13.

prospective status of the species. *Jewell*, 747 F.3d at 602 ("The determination of what constitutes the 'best scientific data available' belongs to the agency's 'special expertise.'").

Plaintiffs argue that the estimates derived from the base period metrics are too uncertain to be used. NWF SJ at 13. The base period "point estimates," however, are calculated by applying standard statistical methods to existing empirical (observational) data. 2014 BiOp at 50; 2008 BiOp at 7-22–7-26.[18] The estimates reflect "the most accurate estimates possible for comparison with the standard (e.g., 1.0 for trend, or 5% for extinction risk probability)." 2008 Hinrichsen Decl. ¶ 8 (ECF 1560). NMFS also recognized that the empirical data is variable and subject to uncertainty. 2014 BiOp at 50; 2014 Response to Comments ("RTC") at 6 (NOAA C34293) (the "hallmark of Columbia basin salmon populations" is high variability in populations and data). It properly accounted for these uncertainties by, *inter alia*: calculating confidence limits, 2014 BiOp at 50 & n.7; 2008 Toole Decl. ¶¶ 34-35, 39; 2008 Hinrichsen Decl. ¶¶ 2-4 (ECF 1647); identifying assumptions used, 2008 BiOp at 7-30 (Table 7.4-1); and providing RM&E actions to address uncertainties, *see, e.g.*, 2008 BiOp at 8.3-40 (requiring "evaluation of pertinent new information on climate change and effects of that information"). NMFS also determined that it could not limit consideration to the quantitative metrics alone. 2014 BiOp at 48; 2008 Reply Toole Decl. ¶¶ 12, 19 (ECF 1649) (explaining how uncertainties were addressed at all stages of the analysis). This "dual reliance on quantitative modeling results and a host of qualitative considerations is an appropriate response to the uncertainty in the point estimates," 2008 Hinrichsen Decl. ¶ 7, and NMFS properly used the quantitative data in its ESA analysis, *see Nw. Ecosystem Alliance v. FWS*, 475 F.3d 1136, 1147 (9th Cir. 2007) ("credible anecdotal evidence represents the 'best scientific … data *available'* and cannot be ignored").

Given NMFS's explicit treatment of uncertainty, Plaintiffs shift to arguing generically

[18] For example, the average R/S productivity calculations started with brood year estimates of productivity, which were variable during the base period. 2014 BiOp at 62 (Figure 2.1-7). NMFS then identified the geometric mean of the brood year productivity estimates to identify the average R/S. *Id*. (the solid red line). Plaintiffs argue that this most likely estimate does not mean it is the true value. NWF SJ at 17-18 & n.10. But the true value cannot be measured, which is why NMFS identifies the best estimate possible. 2014 BiOp at 50; 2008 BiOp at 7-22–7-26.

that NMFS should have performed a quantitative analysis of qualitative factors. NWF SJ at 14, 18-20. But Plaintiffs do not dispute that the qualitative factors are relevant to the inquiry, and they cannot show that every complex interaction influencing Pacific salmonids is subject to quantification. 2014 BiOp at 246 (expert opinions are valid scientific evidence when, *inter alia*, "data are scarce" or "problems are complex"). Here, NMFS identified and analyzed the relevant qualitative factors that inform judgments about the species' future status. *See* 2008 BiOp at 7-34–7-37; *see, e.g.*, *id.* at 8.3-28–8.3-29 (considering uncertainties in quantitative metrics and qualitatively analyzing those factors relevant to ascertaining the species' future status). Its analysis is clear, reasoned, and complies with the ESA. *Jewell*, 747 F.3d 581 (rejecting criticisms that NMFS favored a "subjective, qualitative analysis" over a more quantitative assessment).

2. NMFS's Consideration Of Empirical Data In 2014 Was Sound.

NMFS performed a rigorous range-wide review of the status of the listed salmon and steelhead in 2014, considering all new sources of data to determine whether the status of the species had changed from 2008. 2014 BiOp at 45, 73-108. As NMFS explained, this analysis showed that the status of the populations had not materially changed from the 2008 BiOp's base period estimates. *Id.*; Toole Decl. ¶¶ 9-15 (explaining 2014 quantitative analysis).

Plaintiffs' principal claim here is that, because the point estimates for one metric (average R/S) declined from the base period estimates, the species' base period status has changed since 2008. NWF SJ at 13-16 (assuming that NMFS examined only whether average R/S was within the confidence intervals of the 2008 estimates and, therefore, substituted lower confidence intervals for its prospective analysis). NMFS, however, considered all of the metrics and information in its analysis, not simply "confidence intervals." 2014 BiOp at 66-69.

As NMFS explained, each metric viewed in isolation does not tell the full story – abundance trends and extinction risk indicate the populations have improved, while some of the productivity metrics indicate a decline. 2014 BiOp at 109. Plaintiffs favor seizing on one metric, but NMFS holistically evaluated this combination of data. Toole Decl. ¶ 10 n.3. It found that the metrics and patterns observed were consistent with density dependence, a well-established

biological process where high abundance leads to decreased productivity (through competition for resources or other biological factors). *Id*. ¶¶ 11-14; 2014 BiOp at 67.[19] NMFS tested this assumption, and the results strongly indicated that "productivity has not decreased for these populations when comparing base to recent time periods." Corps 4:919; Toole Decl. ¶¶ 12-15 & Fig. 1; Zabel Decl. ¶ 5; NOAA B187:15955 (Independent Scientific Advisory Board ("ISAB") noting "strong empirical support for density dependent survival" and "the need to increase capacity and productivity of tributary habitats").

Plaintiffs offer no response. They neither dispute NMFS's density dependence analysis nor address NMFS's consideration of all lines of evidence. *See* Toole Decl. ¶¶ 17-19; Zabel Decl. ¶¶ 6-11. Further, their theory that there is low productivity at "very low abundance levels," NWF SJ at 15-16, disregards the data, which show that the average R/S changes in the new data were associated with high abundances (in many cases, exceeding recovery abundance thresholds). 2014 BiOp at 114 (Figure 2.1-25). This pattern—high abundance followed by decreased average R/S estimates—shows that productivity did not change from the patterns present in the 2008 BiOp's base period estimates. Toole Decl. ¶¶ 13-14. The data do not show "consistent declines" in productivity. NWF SJ at 15-16. Plaintiffs' dispute with NMFS's expert analysis fails. *See Nw. Ecosystem Alliance*, 475 F.3d at 1150 ("interpretation of complex genetic data falls within the domain of the Service's scientific discretion, to which we must defer so long as the Service has articulated a rational basis for its conclusion").

C. NMFS's Jeopardy Analysis Considered All Relevant Factors.

Carrying forward their broad disagreement with NMFS's expert analysis, Plaintiffs raise

[19] Plaintiffs' assertions that NMFS arbitrarily inserted abundance into the analysis (NWF SJ at 15), or failed to consider abundance entirely (NPT SJ at 8-10), misunderstand that NMFS considered abundance data at every step of its analysis. 2014 BiOp 54-57; 2008 Toole Decl. ¶¶ 8-16; 2008 Toole Reply Decl. ¶ 21; Toole Decl. ¶ 11 & n.4. Plaintiffs' arguments that NMFS must ensure that the salmonid populations reach certain abundance thresholds likewise fail. NWF SJ at 15 & n.9; NPT SJ at 8. NMFS's analysis evaluates whether population abundance will not drop below critical levels (short-term extinction risk) *and* will increase in the future (productivity above 1.0), and this inquiry provides a reasoned basis to evaluate how the RPA affects the species' likelihoods of survival and recovery. *See* 2008 NOAA C1155:9.

various claims that NMFS failed to consider "relevant factors," such as climate change, baseline and cumulative effects, and the effects of FCRPS operations. These issues are not new, and NMFS fully addressed them in the 2008 and 2014 BiOps. *Nw. Ecosystem Alliance*, 475 F.3d at 1140 (court's "task is simply to ensure that the agency 'considered the relevant factors and articulated a rational connection between the facts found and the choices made'").

1. NMFS Rationally Considered And Incorporated Climate Change Information Into Its Analysis.

Plaintiffs devote considerable attention to NMFS's assessment of climate change impacts in the BiOps. In the end, however, Plaintiffs' arguments amount to quibbles over where and how NMFS presented its climate change analysis, not whether it undertook such analysis. The fact is that NMFS thoroughly considered future climate and environmental conditions throughout these BiOps. *See, e.g.*, 2014 BiOp at 152-182, 435-442 (comprehensive evaluation of climate effects to listed salmonids and habitat); Corps 4:946-1092 (Appendix D). As NMFS explained, global temperatures will continue to rise, leading to expected changes in the salmonids' ocean and freshwater habitats. 2008 BiOp at 7-12-7-13. However, the magnitude and timing of the changes, as well as the salmonids' predicted responses, are highly uncertain. *See, e.g.*, 2014 BiOp at 170 ("magnitude and timing of these [freshwater] changes currently are poorly understood and specific effects are likely to vary among populations"); NOAA B19:1024 (noting "considerable uncertainty" present in these issues). Despite this uncertainty, NMFS analyzed potential climate change effects and incorporated that assessment into its analysis of the RPA. Plaintiffs' disagreement with NMFS's analysis does not undermine these BiOps.

For example, NMFS analyzed three quantitative future ocean climate scenarios and chose not to rely on historical conditions. Instead, NMFS relied on the pessimistic (recent) scenario in analyzing the aggregate effects of the RPA on the listed salmonids. 2008 BiOp at 7-12–7-13; 2014 RTC at 27 ("[O]ur assumption about effects of climate change on ocean conditions is pessimistic, since we primarily rely on an assumption that the mostly bad ocean conditions of the Base period will continue."). Plaintiffs contend that ocean conditions will be worse than the

"recent" scenario, but data "confirms that ocean conditions in the last decade have generally been better than what" NMFS assumed in 2008. *Id.*; 2014 BiOp at 153-54, 180. This confirms NMFS's conservative analysis, as the first 6 years of this 10-year BiOp have occurred under conditions more favorable to salmonids than assumed in the 2008 BiOp. *See* Tehan Decl. ¶ 25.

Plaintiffs also misapprehend the new climate change science, such as Abdul-Aziz *et al.* 2011, NOAA B1. They argue this study "conflicts" with NMFS's findings because it shows that climate change "will result" in dramatic ocean range contractions. NWF SJ at 35-36; NPT SJ at 17-18. The study, however, evaluated "thermal habitats" that were "subjectively" identified. It did not analyze actual ranges or range contractions. NOAA B1:643 ("This paper presents possible reference high-seas thermal habitats" and "does not guarantee the presence or absence of salmon in any ocean domains."); Corps 4:1077 (NMFS explaining the study does not determine range limits, which are influenced by a myriad of factors). Nor did the study identify *new effects* from climate change. NOAA B1:643 ("Our results largely agree with the results of the previous studies" from 1998, 2007, and 2008). NMFS correctly explained that this study "illustrates" concerns previously identified and, thus, adds a perspective but not new effects of climate change unconsidered in 2008. 2014 BiOp at 178. Plaintiffs' mistreatment of the science is not a "fatal problem[]" with NMFS's analysis. NWF SJ at 35.

In addition to ocean effects, NMFS considered and incorporated analysis of freshwater climate impacts into the BiOps and RPA. It assumed that freshwater conditions would be affected by climate change and addressed the degree to which the RPA actions address those possible future effects. *See* 2008 BiOp at 7-14, 7-32–7-35; *id*. 8-17–8-22; 2014 BiOp at 435; 2014 RTC at 15-16. NMFS concluded that its prospective survival and recovery conclusions in the 2008 BiOp were sound, because the RPA increases the resiliency and adaptability of the salmonid population, which in turn will reduce the potential negative effects of climate change. *Id*. That is, the new climate change information "remains consistent with those [effects] described in the 2008 BiOp" and the RPA contains sufficient actions to achieve the prospective survival and recovery improvements identified in the 2008 BiOp. 2014 BiOp at 168, 435-442.

Plaintiffs argue that NMFS failed to properly "use" the climate change information due to NMFS's choice to qualitatively analyze freshwater climate impacts, rather than use quantitative modeling like Crozier and Zabel (2008) (NOAA B88). But as NMFS explained, Crozier and Zabel's modeling is based on "instantaneous attainment of expected 2040 conditions," and the modeling cannot "ramp-up to the 2040 conditions." 2008 BiOp at 7-14. Thus, the modeling lacks the capability to quantify effects of climate change in the context of this RPA. *Id*. Combined with other technical concerns, NMFS concluded that a qualitative analysis was required. *Id*.; 2014 BiOp at 176-77.[20] Indeed, Crozier and Zabel, who reported more optimistic results in an updated 2013 analysis, explain that "[t]here are still many unknowns at both the individual and community level. So our results should not be used as predictions for final decision making." NOAA B85:6621; *see* Tehan Decl. ¶ 26 & n.9.

Plaintiffs also fundamentally misconstrue the BiOp in arguing that NMFS "double-counts" the benefits of RPA actions. NWF SJ at 39-40; NPT SJ at 14-17. This argument is based on the erroneous premise that the RPA was developed to address only certain effects, like specific effects caused by the FCRPS dams, such that other effects (climate change) require their own RPA actions. *Id*.[21] The RPA was developed to improve salmonid survival and recovery prospects considering *all aggregate effects* to the species, including future climate change impacts. 2008 BiOp at 7-13–7-14; 2014 BiOp at 176-82. And the RPA fulfills this purpose. It contains numerous actions that the best available scientific evidence shows will improve the

[20] NMFS did not limit its analysis to the 10-year term of the BiOp, 2014 RTC at 15-17, but properly considered the BiOp's term in determining how far it must speculate on highly uncertain climate effects. This is a reasoned approach that complies with the law. *Wild Fish Conservancy v. Salazar*, 628 F.3d 513, 523-24 (9th Cir. 2010) ("Although it is not for us to dictate precisely how long the term of analysis should be …, it must be long enough for the [agency] to make a meaningful determination" on the likely effects of the action).

[21] Plaintiffs' reliance on the Central Valley Project ("CVP") BiOp misconstrues the record. NWF SJ at 40 n.25; NPT SJ at 18-19 n.8. The CVP RPA was directed at identifying a suite of RPA actions that also take into account climate change impacts, as does the FCRPS RPA. NOAA C33559:281257 ("the RPA includes extensive actions to reduce impacts of the FCRPS on climate change that are similar to the actions required by the CVP/SWP BiOp"). Moreover, that the CVP and FCRPS RPAs are different does not reflect a different analysis, but simply the fact that the CVP is a different project with different limitations and effects on listed salmonids. *Id*.

resiliency and ability of the salmonid populations to adapt to climate change. C*ompare* NOAA B185:15535-39 (ISAB, identifying actions to mitigate for the effects of future climate change), *with* 2008 BiOp at 8-17–8-22; 2014 BiOp at 435-42. Plaintiffs' only response is that NMFS either did not analyze the RPA actions, which is belied by the BiOps, or that some of the RPA actions do not address climate change. NWF SJ at 39-40. NMFS, however, relied only on those RPA actions that address possible climate change effects in reaching its conclusions. 2014 RTC at 18; 2014 BiOp at 435-42; *see also* Tehan Decl. ¶¶ 27-28.[22]

In short, NMFS considered the climate science throughout its analysis, and it reasonably exercised its expert judgment in using pessimistic ocean scenarios and qualitatively evaluating the degree to which the RPA actions address possible future climate change effects. That Plaintiffs disagree with how the equivocal climate science was "used" does not undermine the strength and rigor of NMFS's climate change analysis. *Ctr. for Biological Diversity v. Kempthorne*, 588 F.3d 701, 712 (9th Cir. 2009) ("Although the specter of climate change made the Service's prediction less certain than it would be otherwise, such uncertainty is not 'high uncertainty,' but only that quotient of uncertainty which is always present when making predictions about the natural world. Again, we grant the Service great deference as it made a scientific prediction within the scope of its technical expertise.") (citation omitted).

2. NMFS's Cumulative Effects And Baseline Analyses Are Reasonable And Fully Capture The Environmental Background For NMFS's Analyses.

The environmental baseline is a current and ongoing assessment of a species' health. *Locke*, 776 F.3d at 991; Final Rule, 51 Fed. Reg. 19,926, 19,932 (June 3, 1986) (the analysis "involve[s] consideration of the present environment in which the species or critical habitat

[22] Plaintiffs notably ignore that the FCRPS itself mitigates for the effects of climate change. As NMFS's draft climate science strategy provides, climate change is addressed in part through actions that reduce emissions. *See* Draft Climate Science Strategy at 70, *available at* www.st.nmfs.noaa.gov/Assets/ecosystems/climate/documents/draft_NOAA%20Fisheries_Climate_Science%20Strategy_Jan_2015.pdf. The FCRPS both substantially reduces use of carbon-based fuel in the Pacific Northwest and allows greater integration of renewable wind generation. Corps 2:150-51. Plaintiffs disregard these positive effects on global climate change, consistent with their overall discounting of any beneficial actions occurring in the FCRPS.

exists, as well as the environment that will exist when the action is completed, in terms of the totality of factors affecting the species or critical habitat"). It includes the impacts of all activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone Section 7 consultation, and the impact of non-federal actions contemporaneous with the consultation in process. 50 C.F.R. § 402.02. "Cumulative effects" are the effects of future non-federal activities "that are reasonably certain to occur within the action area." *Id.* Combined, these baseline impacts and cumulative effects inform NMFS's analysis of how this RPA affects the species' critical habitat, survival, and recovery. *Id.* § 402.14(g)(2)-(4).

In 2008, NMFS considered all cumulative effects in the FCRPS area, informed by comprehensive information provided by Oregon, Washington, and Idaho about ongoing, future, or expected projects that were reasonably certain to occur and that were expected to benefit recovery efforts. *See* 2014 BiOp at 221; NOAA B422 at Ch. 17; NOAA B282:27639-40. NMFS reviewed that information for the 2014 BiOp and concluded that the actions that were ongoing were likely to continue into the future; thus, the cumulative effects analysis was still accurate. 2014 BiOp at 221. Moreover, NMFS assessed whether there was new information about expected, non-Federal actions that would change its expectations about cumulative effects, and found none. *Id.* This review fully satisfied the ESA's "cumulative effects" requirement. *See Selkirk Conservation Alliance v. Forsgren*, 336 F.3d 944, 961 (9th Cir. 2003) (given that cumulative effects were considered holistically within a legally binding conservation agreement, the agency did not need to "list, map, and discuss every pending Stimson harvest plan"); *Columbia Snake River Irrigators Ass'n v. NWF*, 230 Fed.Appx. 659, 661 (9th Cir. 2007) ("NMFS was within its discretion to find that state-regulated harvests were reasonably certain to occur in the future, based on past practice.").

NMFS similarly considered the baseline, including any new, relevant biological opinions that might change its conclusions. *See* 2014 BiOp at 183-220; 185 (describing large groundwater replacement project). As addressed above, in 2008, NMFS gathered available empirical data on fish survival that measure the baseline condition of fish affected by the FCRPS. As explained,

base period estimates are driven by empirical data on how fish survived under all activities and conditions affecting them during the base period. The base period estimates are then adjusted to reflect the expected effect of activities that are different from the base period, including by expected improvements in the mainstem hydro projects, habitat restoration, and negative impacts of avian predation. *See supra.* In making the base period estimates, NMFS based its analysis on an understanding of the Columbia River basin – that all effects (positive or negative) ongoing during the base period were likely to continue – unless NMFS had evidence that something affecting the survival or reproduction of the population was likely to change. 2008 BiOp at 7-11–7-12. Thus, the estimates of base period fish survival, as adjusted, permissibly provide a biological proxy for all of the impacts of activities in the action area. *See, e.g.*, *Oceana, Inc. v. Pritzker*, 2014 WL 7174875, at *14-15. NMFS's method for baseline analysis therefore incorporates ongoing actions (*e.g.*, harvest, land-use practices) that adversely affect the species.

Those analyses alone are sufficient, but NMFS went further. First, NMFS assessed the state of tributary and estuary habitat and any negative effects of human activities in the environmental baseline and cumulative effects sections of the 2008, 2010, and 2014 BiOps. NMFS assessed each species and each RPA action in conjunction with the environmental baseline and cumulative effects. *See, e.g.*, 2008 BiOp at 8.3-39-46 (analysis for SR spring/summer Chinook and its critical habitat); 2014 BiOp at 189-93. Second, the expert panels for the tributary and estuary habitat program considered recent changes in habitat characteristics (whether the result of a cumulative effect, a baseline impact, or part of the background) that negatively affect fish survival when they assess limiting factors under current habitat conditions. 2014 BiOp at 247; Tehan Decl. ¶¶ 19-23; Krasnow Decl. ¶¶ 39-42. Thus, adverse impacts are included in the habitat improvement project analyses. Third, NMFS analyzed the VSP factors for each population, "an appropriate scientifically based proxy" for evaluating the current state of salmonids. *See Audubon Soc'y of Portland v. NMFS*, 849 F.Supp.2d 1017, 1045 (D. Or. 2011).

Plaintiffs do not seriously dispute this analysis and, instead, suggest that NMFS focused only on expected positive impacts from tributary and estuary habitat actions. NWF SJ at 42. But

as explained above, NMFS analyzed all ongoing adverse effects in its base-to-current analysis, and it also analyzed all factors limiting existing tributary and estuary habitat in evaluating the RPA actions. 2014 BiOp at 320; 2014 RTC at 26-27. NWF also errs in relying on case law where agencies failed to consider effects from an important project, because that did not occur here. *Cf. Defenders of Wildlife v. Babbitt*, 130 F.Supp.2d 121, 128 (D.D.C. 2001); *S. Yuba River Citizens League v. NMFS*, 723 F.Supp.2d 1247, 1271 (E.D. Cal. 2010) (holding that the agency failed to address particular effects in the baseline). Indeed, Plaintiffs do not identify any specific actions that they contend were not considered as part of the baseline.[23] Because NMFS's analyses took into account "the full natural and human context of the proposed action," they comply with the ESA. *NWF*, 524 F.3d at 926; *Selkirk Conservation Alliance*, 336 F.3d at 961.

3. Oregon's Arguments That NMFS Failed To Consider Relevant Factors Are Contrary To The Law And Unsupported By Reasoned Analysis.

Oregon argues that NMFS ignored "relevant" factors associated with juvenile dam passage survival estimates, mortality caused by the dams that arise in later life stages (latent mortality), and the effects of tributary habitat improvements in increasing "smolt-to-adult" return estimates, or SARs. OR SJ at 30-36. Underlying each argument is Oregon's position that NMFS must quantify the level of mortality caused by the FCRPS dams that is precluding recovery, because that level defines what must be "'offset' through the RPA actions." OR SJ at 32, 36 (RPA must "compensate for FCRPS impacts"). Oregon's proposed construct, and variations thereof, repeatedly have been rejected by this Court and the Ninth Circuit.

In *IDFG v. NMFS*, 850 F.Supp. 866, this Court rejected NMFS's framework of focusing only on the reduction of "mortality," instead of analyzing how the action affects the "entire life-cycle" and survival. *Id*. at 899. In *PCFFA v. Bureau of Reclamation*, 426 F.3d 1082 (9th Cir. 2005), the Ninth Circuit held that "[t]he proper baseline analysis is *not the proportional share of*

[23] For example, NWF asserts in a footnote that NMFS is aware of other, important section 7 consultations, NWF SJ at 44 n.30, but points to no new, specific instances. Instead, they cite a grazing case, NWF SJ at 42, but grazing is already factored into the analysis as ongoing actions incorporated in the base-to-current analysis. The failure to identify any new effects not considered in NMFS's analysis is fatal to Plaintiffs' argument. *Jewell*, 747 F.3d at 602.

responsibility the federal agency bears for the decline in the species, but what jeopardy might result from the agency's proposed actions in the present and future human and natural contexts." *Id. at* 1093 (emphasis added). In *NWF v. NMFS*, the Ninth Circuit again rejected an approach directed at offsetting effects of the FCRPS, rather than analyzing "whether the listed fish would be jeopardized by the aggregate" effects to the listed species. 524 F.3d at 926, 930, 933 (agency must "adequately consider the proposed action's impacts on the listed species' chances of recovery"). The relevant inquiry is how the agency action affects *survival and recovery* and not, as Oregon argues, whether some amount of mortality is "offset."

Oregon's arguments also contradict its position taken in other cases in this Court. Under the auspices of *United States v. Oregon*, Civ. No. 68-513-KI (D. Or.), Oregon's harvest of fish and "take" of the same ESA-listed salmonids at issue here are subject to an ESA consultation. 2008 NOAA B377. The *United States v. Oregon* BiOp uses the *exact same* jeopardy and adverse modification standards as the 2008 and 2014 BiOps. *Id.*:1-9–1-10, 8.2-32. Yet in that case Oregon did not claim that the ESA requires it to "offset" *any* of the mortality it causes to listed salmonids, let alone the amount of harvest mortality that may affect prospects for recovery. Instead, Oregon's position before Judge King was that the *United States v. Oregon* BiOp is, *inter alia*, "fundamentally fair, adequate, and reasonable, both procedurally and substantively, in the public interest, and consistent with applicable law."[24] This contradictory position shows that Oregon seeks to apply a very different ESA standard to the FCRPS than was applied to its own harvest management actions.

Oregon's technical disputes with NMFS's analysis fare no better. Oregon first argues that NMFS underestimates the effects of the FCRPS dams through its analysis of dam passage survival estimates. OR SJ at 31-32. The RPA includes multiple performance standards, including system, reach, and dam passage survival standards. NOAA B281:27472-73; Graves Decl. ¶ 39. For the dam passage performance standards, the RPA established higher survival levels than

[24] *See* All Parties' Joint Motion and Stipulated Order Approving 2008-2017 Management Agreement at 6-7, *United States v. Oregon*, Civ. No. 68-513-KI (D. Or.) (ECF 2546).

were occurring in 2007. Graves Decl. ¶ 39. These standards "led to many specific improvements (surface passage weirs, guidance walls, modified sluiceways, upgraded bypass systems, and operations for improved egress)," *id*., and the Corps tests the effects of these improvements pursuant to strict protocols and methodologies that independent scientists and all of the sovereigns (including Oregon) have exhaustively reviewed, *id*. ¶¶ 42, 44; Corps 14559:256080-85. Through this testing, the improvements "have been quantitatively shown to improve survival at specific projects." Graves Decl. ¶ 39; NOAA B47:3298 (comparing survival estimates).

After the fact, Oregon now disputes these multi-million dollar tests, asserting that the tests are "biased" and that regional scientists have found the tests inadequate. OR SJ at 31-32. The record does not support these claims. *See* Graves Decl. ¶ 40 (explaining that the Independent Scientific Review Panel ("ISRP") was "supportive of the proposed methodology and ultimately recommended that this study meets scientific review criteria"); *id*. ¶¶ 41-44 (demonstrating that Oregon's concerns that the tests are biased and inadequate are unfounded). Oregon also argues that The Dalles Dam test in 2010 for steelhead (95.34% survival) shows a problem with the BiOp spill levels. OR SJ at 31. Oregon neglects to consider that, after the test, the Corps reduced avian predation in the tailrace by over 50%, and the next test performed under similar conditions resulted in an estimated 99.52% dam passage survival estimate. *See* Graves Decl. ¶¶ 45-46.

Oregon raises other meritless claims. It asserts that NMFS failed to quantify "latent" mortality, OR SJ at 32, which is the amount of post-Bonneville dam mortality that would not occur if the FCRPS dams did not exist, NOAA B184:15415. But Oregon does not identify the legal relevance in "quantifying" this source of mortality, when NMFS's life-cycle analysis accounts for *all* sources of mortality regardless of cause. In any event, latent mortality is not measurable – there is no pre-dam reference point for natural mortality, which would be needed to measure latent mortality. NOAA B184:15413-15 (ISAB 2007); Graves Decl. ¶¶ 20-25. Oregon's belief that comparing SARs of populations within a species can "assist" in measuring latent mortality identifies no deficiency in NMFS's analysis. OR SJ at 32-33. NMFS has repeatedly evaluated this "up-river and down-river" comparative approach, rejected it, and has abundant,

credible reasons for doing so. Graves Decl. ¶ 21 ("The debate on this issue has a long history and most scientists who have analyzed this issue have been critical of Mr. Nigro's assumptions."); *id*. ¶¶ 20-25 (demonstrating why this comparison is scientifically and methodologically flawed).

Oregon's argument that NMFS ignored another "relevant" factor—whether additional spill could improve salmonid survival—is similarly baseless. OR SJ at 41. NMFS considered Oregon's theories. 2014 BiOp at 380-82; Graves Decl. ¶¶ 30-34. It found "substantial weaknesses in the analysis," including use of potentially spurious correlations to establish causation and omission of "obvious variable[s]" that would influence the predicted results. 2014 BiOp at 381-82.[25] The ISAB later confirmed NMFS's analysis, explaining that the "spill test may *not* result in increased SARs as the justification for the proposed test is based on correlative models that do not establish causality." Corps 3669:135199. And NMFS determined that these proposals do not undermine the adequacy of this BiOp's spill measures. *See* Graves Decl. ¶ 34.

Finally, relying on Mr. Nigro's SARs analysis, Oregon argues that NMFS erred in relying on tributary habitat actions "in lieu of" addressing survival in the hydrosystem. OR SJ at 33-36. Mr. Nigro's analysis, however, is directed at reaching recovery which, as discussed above, is not the function of ESA Section 7(a)(2). Toole Decl. ¶¶ 29-34, 52-56 (showing that Plaintiffs are comparing SARs to recovery levels, not standards associated with jeopardy).[26] In any event, the bases for Oregon's argument—that the RPA addresses tributary habitat actions "in lieu of" improvements in the mainstem migration corridor—misrepresents this RPA. Toole Decl. ¶¶ 37-43; *id*. ¶ 43 ("The survival changes that NMFS expects to occur in SAR life stages (primarily FCRPS hydro improvements) exceed the survival changes expected from tributary habitat

[25] The variables that can decrease survival at higher spill levels include: increased total dissolved gas levels (Corps 6080); unfavorable tailrace conditions (NOAA B47:3689); and delay and fallback for adult migrants (2008 NOAA B67; 2008 NOAA B89), among others. *See* 2014 BiOp at 381-82; Corps 3135:121371-73; NOAA B383:38386; Graves Decl. ¶ 32.

[26] As explained above and by Dr. Toole, Mr. Nigro's and Oregon's SARs analysis are not relevant. *See* Toole Decl. ¶¶ 20-43. Even were this not the case, Dr. Zabel demonstrates numerous, fundamental problems with Mr. Nigro's analysis, which "reinforce that the analysis was not peer-reviewed, is not reproducible, and thus the overall conclusions are not supported." Zabel Decl. ¶ 13; *see also id*. ¶¶ 13-16.

improvements for nearly all populations (Table 1)."). These arguments do not show that NMFS erred in adopting this RPA, much less that it *arbitrarily* rejected Oregon's preferred approach to developing an RPA. *Locke*, 776 F.3d at 1002 (courts "give the agency flexibility to choose among several appropriate [RPAs]. We will uphold that choice so long as it is reasonably supported based on a review of the record as a whole.").

4. Oregon's Contingency Planning Arguments Create Issues That Do Not Exist In This ESA Consultation.

Oregon next builds an entire argument from a fundamental misconception – that the Adaptive Management Implementation Plan's ("AMIP")[27] contingency measures represent the BiOp's adaptive management and performance standard measures. OR SJ at 42-44. The AMIP contingency measures, however, do not and were never intended to supplant the BiOp's performance standards and adaptive management provisions. *See* 2014 BiOp at 261 ("*The RME program* put in place under the 2008 BiOp and the AMIP was rigorously designed to provide statistically meaningful results on the effects of the program in a manner that could be used in an adaptive management framework") (emphasis added); *id*. at 427 (same); ECF 1733 at 3-9 (the RPA hydro, tributary, estuary, and RME actions ensure the performance standards are achieved, not the AMIP contingency measures); NOAA C33559:28133-44 (explaining BiOp's adaptive management framework and how it relates to the AMIP contingency measures).

Contrary to Oregon's characterizations, the AMIP's contingency measures were precautionary actions put in place to address and respond to *unforeseen* circumstances. NOAA B44:2867 & n.4 ("The Administration, based on its review… does not believe that [a event resulting in contingency actions] is an expected outcome. Indeed, implementation of the RPA actions should increase the average abundance of each species over time."); 2014 BiOp at 420

[27] The AMIP was developed in 2009 by the Obama Administration after a review of the 2008 BiOp. *See* NOAA B44. The AMIP "enhances and strengthens implementation of activities, research, and contingencies within the RPAs adaptive management provisions" and "called for a more precautionary approach to address uncertainties about the future condition of the affected salmon and steelhead, particularly out of concern for how climate change may affect these species and their habitat." NOAA B286:30324.

("at this time 4-year running averages of abundance for each of the monitored species are all well above the … abundance triggers … and are likely to remain so for the foreseeable future."). Oregon does not dispute that these measures focus on unforeseen circumstances. Moreover, Oregon obviously mischaracterizes the contingency measures by asserting that the agencies "are free to decide that no actions need to be taken." OR SJ at 44. Without knowing which trigger for which species is met, and why, it is impossible to preemptively define which remedial actions *should* be implemented. This is why the agencies established a strict process of coordination with NMFS, the sovereigns (including Oregon), and others to diagnose why a trigger was reached and to determine which of the menu of contingency actions should be implemented. 2014 BiOp at 424-26; NOAA B427 (contingency plan). NMFS was not required under the ESA to engage in contingency planning, and its precautionary decision to do so does not undermine the BiOps.

II. NMFS'S ANALYSIS OF THE RPA ACTIONS IS REASONED AND COMPLIES WITH THE LAW.

A. NMFS Properly Relied On The RPA Actions In The BiOp.

The BiOp includes several RPA actions challenged in this litigation, including estuary and tributary habitat restoration, bird predation reduction, and kelt management programs. The Ninth Circuit recently clarified that a valid RPA is one that NMFS "believes would not violate subsection (a)(2) … and can be taken by the Federal agency." 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.02. "This moderate and deferential language … imposes a 'flexible standard for the consulting agency' that does not require the Secretary 'to explain why he chose one RPA over another.'" *Locke*, 776 F.3d at 1002. Thus, in evaluating whether the RPA is sufficient to avoid jeopardy and adverse modification, NMFS has the flexibility to choose among several appropriate alternatives and may permissibly rely on the action agencies' findings that the RPA actions are economically and technically feasible. *See id.* at 1002-03; *NWF v. NMFS*, 524 F.3d at 936 n.17 (mitigation actions properly relied upon where, for instance, they are "in fact under agency control"). Indeed, the Ninth Circuit has held that incorporation of mitigation actions into the BiOp renders the actions enforceable and, therefore, properly relied upon in a BiOp. *Ctr. for*

Biological Diversity v. BLM, 698 F.3d 1101, 1117 (9th Cir. 2012). Finally, NMFS may rely on projections in its ESA analysis where, as here, the action agency has a reasonable basis for finding that RPA implementation is feasible, even if all details are not defined or known. *See Selkirk*, 336 F.3d at 954 (upholding reliance on an agreement that "spells out a strategy to cooperate and coordinate in management for grizzly bears") (citations omitted); *Locke*, 776 F.3d at 1007-08 (upholding RPA action related to floodplain restoration where the action relied on an expert group's recommendations for future implementation).

Despite this law, Plaintiffs challenge FCRPS RPA actions as insufficient because, *inter alia*, NMFS relies on "conceptual" or "unspecified but hoped-for" habitat actions. *See* NWF SJ at 21-22, 26; *see also* NPT SJ at 22; OR SJ at 37. Moreover, Plaintiffs cite the Court's 2008 preliminary review of the habitat programs as if nothing has changed since then, as if the Ninth Circuit has not clarified the proper standard for reviewing an RPA, as if both habitat programs have not matured and hundreds of new actions have not occurred in the tributaries and dozens in the estuaries, with more anticipated through 2018. *See* Tehan Decl. ¶¶ 9-11; 2014 BiOp at 270, 280-81. The requirements to undertake the habitat actions are incorporated into the BiOp and, thus, NMFS reasonably relied on them in reaching its conclusions. *Ctr. for Biological Diversity*, 698 F.3d at 1117. And NMFS reasonably relied on 5 years (2007-2012) where the Action Agencies have implemented these RPA actions. The record and law more than amply support NMFS's reliance on this RPA to avoid jeopardy.

Plaintiffs also contend the RPA's predicted survival improvements are uncertain. *See, e.g.*, NWF SJ at 21. These claims are addressed more fully in the RPA action-specific sections but, generally, the predicted survival improvements under these RPA actions are based on expert-driven modeling of survival improvements. *See infra*. By definition, assessing the likelihood of jeopardy "involves a great deal of predictive judgment," and NMFS is entitled to rely on reasonable predictions where supported by the record. *Trout Unlimited*, 559 F.3d at 959; *Lands Council*, 537 F.3d at 993. This is particularly true where the predictions are based on credible modeling. *Locke*, 776 F.3d at 994 ("[W]e afford the agency discretion to choose among

scientific models; we 'reject an agency's choice of a scientific model only when the model bears no rational relationship to the characteristics of the data to which it is applied.'"). Although Plaintiffs disagree with the agencies' approach, the agencies permissibly used expert-driven models and other methods based on the best available science, updated through rigorous research, to evaluate the RPA actions' predicted effects.

Plaintiffs also attempt to append their own requirement to the ESA by arguing that the phrase "give the benefit of the doubt" gives rise to a separate, substantive legal requirement. *See* NWF SJ at 20. In 1979, Congress relaxed the jeopardy standard from "will not" jeopardize listed species to the current "not likely" to jeopardize listed species. This statutory change was necessary to prevent the FWS and NMFS from having to issue a (negative) "likely to jeopardize" biological opinion whenever an action agency could not "guarantee with certainty" that its action would not jeopardize listed species. H. Conf. Rep. No. 96-697, *reprinted in* 1979 U.S.C.C.A.N. 2572, 2576. Congress's conference report noted that *the amended statutory language*, not some new standard, "continues to give the benefit of the doubt to the species." *Id*. Thus, the notion of "giv[ing] the benefit of the doubt to the species" does not create an additional substantive standard, and Plaintiffs' use of the concept to usurp NMFS's expert judgment is contrary to law. *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988) (discussing the "benefit" standard, where data on adverse impacts to species was available, but the agency failed to use it); *Oceana, Inc. v. Evans*, 384 F.Supp.2d 203, 219 (D.D.C.), *order clarified* 389 F.Supp.2d 4 (D.D.C. 2005) (discussing *Greenpeace Action v. Franklin*, 14 F.3d 1324, 1337 (9th Cir. 1992)); *Miccosukee v. United States*, 566 F.3d 1257, 1266-68 (11th Cir. 2009) ("[N]o court decision has ever relied solely on [the 1979 Committee Report's] benefit of the doubt language to find that a biological opinion was arbitrary and capricious."); *Bennett v. Spear*, 520 U.S. 154, 176 (1997) (best available science standard assures the ESA is not "implemented haphazardly").

In short, the RPA is part of the analyzed action, NMFS may rely on it in its analysis, and the record here demonstrates the Action Agencies' commitment to implementing habitat programs and other actions. NMFS may also permissibly rely on modeling of survival benefits,

unless modeling bears no relationship to the characteristics of the data used. With these standards in mind, we turn to NMFS's consideration of several specific RPA actions.

B. NMFS's Analysis Of The Tributary RPA Actions And Program Is Sound.

The agencies possess the authority and know-how to complete region-wide tributary habitat improvement actions. Since 2008, the Action Agencies have been methodically implementing actions toward the BiOp performance standards. As of 2011, actions sufficient to achieve the habitat-quality improvements ("HQI") performance standards have been implemented for thirty-five of fifty-six populations. NOAA B47:3520-25 (Table 35, 7th col.); 2014 BiOp at 269. For the remaining populations, the Action Agencies specified additional actions for implementation through 2018 that are projected to achieve the remaining HQIs. 2014 BiOp at 280-83. Consistent with provisions in the RPA, they have a demonstrated record of replacing actions that fail to proceed with others that are successfully completed and a strategy going forward to replace actions if needed. Tehan Decl. ¶¶ 39-41; USBR 8355 (2nd-3rd row); NOAA B48:4443-48.[28] As one indicator of their commitment to the program, BPA, the Corps, and the Bureau of Reclamation collectively spend $100 million annually on habitat restoration for listed salmonids. NOAA B42:2751. For the 2014 BiOp, NMFS reviewed the science underpinning the tributary habitat program and implementation progress, and concluded that it is "reasonably certain that the performance standards in RPA Action 35, Table 5, will be met." 2014 BiOp at 228; Tehan Decl. ¶¶ 15-16. While Plaintiffs rehash arguments challenging previous BiOps, they ignore impressive progress in implementation of tributary habitat improvement actions, development of extensive new information that will help target actions where they provide the most benefit, and the development of partnerships with local groups to achieve the program's full implementation. 2014 BiOp at 253-55, 69-77, 284-85.

The best available science shows that removing tributary habitat constraints through restoration actions is reasonably certain to increase fish abundance and productivity. 2014 BiOp

[28] And some actions are more successful than anticipated. *See* USBR 87364, p.1 (row 7); 3 (last row); p. 9 (1st row); USBR 87750, 3 (1st row); 4 (last row); Tehan Decl. ¶¶ 39-40.

at 229, 232-38; NOAA B284:30045; Tehan Decl. ¶¶ 12-16. Improving passage, improving habitat by restoring instream structure and complexity, and reconnecting tributary and floodplain habitat has increased fish abundance. 2014 BiOp at 233-36; NOAA B41. Studies also show that restoring habitat can improve survival. In some cases, post-restoration survival was similar to survival in high-quality river systems. And, in other cases, areas with more habitat improvement actions have fish with significantly higher survival rates than those without such actions. *Id.* at 236-38, 240-42; Tehan Decl. ¶ 82. Thus, the fundamental premise of this habitat program – that tributary restoration actions can and do benefit salmonids – is sound.

Moreover, the agencies use methods to estimate predicted benefits of the habitat program based on the best available scientific data and information. The tributary program is informed by Expert Panels who evaluate and then predict changes in tributary habitat constraints or "limiting factors" (*i.e.*, insufficient flow, high temperatures) from habitat improvement actions, using the best available information supplemented by expert opinion. 2014 BiOp at 247-49. Panel members are biologists, hydrologists, and engineers from the area sovereigns, public interest group members, and federal agency staff chosen based on their local familiarity with the watersheds and actions tasked to review. *See* NOAA B42:2752-53. Using an empirically derived model, the Action Agencies then convert those limiting factor improvements into projected HQIs[29] for individual populations, which correspond to survival improvements.[30] 2014 BiOp at 227, 250-52; Tehan Decl. ¶ 66 (showing conservative assumptions applied in evaluating benefits of habitat projects); 2014 RTC at 24; *see* 2007 CA at 45182-45222; 2008 BiOp at 7-43–7-46; 2014 BiOp at 229-65; Tehan Decl. ¶¶ 6-16. By relying on the best available modeling, expert

[29] These HQIs are not the same as the habitat metrics reported by the Action Agencies. Rather, they are connected to the Expert Panel process and the changes in limiting factor function. *Compare* Tehan Decl. ¶ 38 n.11, 75-76 *with* OR SJ at 37.

[30] NWF improperly uses the term "numerically specific" to characterize the survival improvement predictions and to overstate the precision of the Action Agencies' and the Expert Panels' predictions. NWF SJ at 29. Rather than targeting numerical precision, which all parties and experts acknowledge is currently impossible, the Expert Panels derive the percentage change in limiting factor function from available data about the habitat actions, the scientific literature, and their own judgment. The Action Agencies use these estimates in a model that provides an estimated change in survival based on these changes in limiting factors. 2014 BiOp at 229-65.

judgment, and rational methods to estimate the effects of habitat improvements on salmonid survival, NMFS's evaluation of the RPA's tributary habitat program is reasonable.

Despite the established program, grounded in the best available scientific data, Plaintiffs challenge the tributary program because they argue that the benefits of the tributary program are not detectable or verifiable. NWF SJ at 26-29; OR SJ at 37-38. Plaintiffs are requesting a level of certainty not required by the ESA.[31] *See Lands Council*, 537 F.3d at 997-98 (rejecting requirement for "a particular type of proof that a project would maintain a species' population" and deferring to an agency's informed assessment of its chosen methodology). Rather, an RPA complies with the ESA if it relies on the best *available* science. *See Jewell*, 747 F.3d at 602; *Locke*, 776 F.3d at 995. NMFS complied with this standard. Once a habitat action is implemented, benefits may accrue over time, but even if they accrue immediately, the fish life cycle is such that survival improvements at the population level may take years to detect. *See* Tehan Decl. ¶¶ 65-67; *see also id.* ¶¶ 75-85. As here, environmental management must often rely on modeling and expert judgment. To require scientific certainty in estimating the anticipated results is unrealistic and inconsistent with the ESA's best available science standard. *See Nw. Ecosystem Alliance*, 475 F.3d at 1147 (NMFS "may not ignore evidence simply because it falls short of absolute scientific certainty").[32] This is why NMFS relied on a rational model to predict likely effects, one informed by expert judgment and the latest studies and data relating habitat improvements to survival changes in fish populations. 2014 BiOp at 245-52; *see also* Tehan Decl. ¶ 85 ("[T]he tributary habitat RME and life-cycle modeling program is one of the largest

[31] Indeed, Oregon does not even accept its own position, arguing that adjustments to spill and other measures should occur, even though it does not, and cannot, show any "detectable" or "verifiable" life-cycle benefits to salmonids from adjustments to spill operations. *See* NOAA B383:38392 ("a minimum of n = 28 years of replication per [spill] treatment" would be needed to have an 80% chance of detecting a "change in survival between spill treatments").

[32] Judge Redden recognized the impossibilities in Plaintiffs' position. *NWF v. NMFS*, 839 F. Supp. 2d at 1130 ("I recognize the inherent uncertainty in making predictions about the effects of future actions. If NOAA cannot rely on benefits from habitat improvement simply because they cannot conclusively quantify those benefits, they have no incentive to continue to fund these vital habitat improvements. Moreover, requiring certainty with respect to the effects of a mitigation plan would effectively prohibit NOAA Fisheries from using any novel approach to avoiding jeopardy, including dam removal.").

and most sophisticated of its kind."). Thus, "plaintiffs' bare allegation that the agency's distinction conflicts with the 'best scientific evidence available' fails." *Or. Trollers Ass'n v. Gutierrez*, 452 F.3d 1104, 1120 (9th Cir. 2006).

NWF next argues that NMFS's assessment was arbitrary because predictions of climate change impacts to the tributaries in the next 20 to 30 years mean that NMFS must, but failed to, consider climate change effects in assessing the anticipated benefits from the tributary program. *See* NWF SJ at 37-38. But, as NWF acknowledges, climate change science was evaluated in the BiOp, *id.* at 37, and it *is* used in the tributary program. The Expert Panels consider "risk of effects from other threats that would confound or reduce the positive effects of the actions." *See* Tehan Decl. ¶ 19. When the Expert Panels meet, they reassess the limiting factors, including water temperature and impacts of fires. *Id.* ¶¶ 20-23. Thus, local impacts from climate change are part of the evaluation of proposed actions. And, despite uncertainties regarding the effects of climate change on habitat function and fish survival in freshwater during the time period under consideration in the BiOp, such effects were considered qualitatively. *Id.* ¶¶ 25-26. In addition, in prioritizing tributary actions for implementation under the BiOp, the extent to which actions are expected to ameliorate the effects of climate change was considered. *Id.* ¶¶ 24-32; NOAA B41:2709; 2014 BiOp at 436-39; 2014 RTC at 18. A number of actions with components to address climate change have already been implemented. Tehan Decl. ¶ 28.

Contrary to Plaintiffs' claims, NMFS also rationally addressed whether the Action Agencies were on track to implement actions by 2018 sufficient to achieve the HQI performance standards. During the remand, NMFS determined that the Action Agencies presented a path to meeting the RPA habitat performance standards by identifying a suite of Expert Panel-reviewed projects for all but seven populations. 2014 BiOp at 281-82; Tehan Decl. ¶¶ 34-37, 45-50. For those populations where Expert Panel-reviewed actions did not meet the targets, "the Action Agencies worked with local implementing partners to identify and evaluate supplemental tributary habitat actions." 2014 BiOp at 282. Plaintiffs speculate the Action Agencies will fail to meet their HQI performance standards because they believe the supplemental actions are not

clearly specified. NWF SJ at 26; OR SJ at 37-38. These actions, however, are identified with detail similar to actions that were reviewed by the Expert Panels, which NWF apparently finds adequately specified. *See* NOAA B48:4311-37 & *id.*:4435-39 (summarizing by population actions reviewed by Expert Panels in 2012 and by the Action Agencies in 2013). In each instance, the actions identify populations and limiting factors to be addressed, and metrics associated with the actions. *See* Tehan Decl. ¶¶ 58, 34-37; 53-61. Implementation of any action, including any supplemental action, can occur before the next panel workshops, when such actions will be reviewed as implemented. *See* 2014 RTC at 32. NMFS discussed these supplemental actions thoroughly with the Action Agencies to ensure that they were implementable and, when implemented, reasonably certain to provide the predicted habitat quality improvements. NMFS also conducted an additional review of the Action Agencies' strategies for populations where the Action Agencies had made less progress. *See* 2014 BiOp at 281-83, 286-316; Tehan Decl. ¶¶ 35-37; NOAA C32516, C32517, C32777.

Finally, the Action Agencies provided a strategy to replace tributary actions if needed. *See* NOAA B48:4443-45; Tehan Decl. ¶¶ 39, 38-44. Based on those actions identified and evaluated by expert panels (or by the Action Agencies as an interim step), supplemented by NMFS's own review of populations with supplemental actions or less progress to date, and Action Agency commitments, including the Fish Accords, NMFS had a solid basis for concluding that the actions under the tributary program through 2018 were reasonably certain to achieve the HQI performance standards. 2014 BiOp at 316-18. This action plan is consistent with the approach specified by Judge Redden. *NWF v. NMFS*, 839 F.Supp.2d at 1128 ("It is one thing to identify a list of actions, or combination of potential actions, to produce an expected survival improvement and then modify those actions through adaptive management to reflect changed circumstances. It is another to simply promise to figure it all out in the future.").[33]

[33] The Nez Perce Tribe identifies instances where they have concerns whether funding exists for particular projects. NPT SJ at 21, 23-24. But, this is more of a policy concern rather than a challenge to NMFS's reliance on tributary habitat measures or actions being completed. First, the BiOp requires the Action Agencies to achieve the HQI standards in RPA Action 35, Table 5, not

Plaintiffs also attempt to challenge the BiOp based on the ISAB review of the Northwest Power and Conservation Council's Fish and Wildlife Program ("FWP"). NWF SJ at 25. However, there are important distinctions between the FWP and the BiOp's tributary habitat program. While many BiOp tributary habitat program *actions* are implemented under the FWP, the BiOp's tributary program provides an overarching *framework* that is very different from the FWP. For example, in its review of the FWP program, the ISAB noted a lack of quantitative objectives, lack of information on biological potential, and lack of understanding of the scope of restoration required to achieve the program's vision. *See* NOAA B188:16029. The BiOp tributary habitat program, in contrast: (1) has quantitative objectives (contrast the performance standards for fifty-six populations of salmon and steelhead in RPA Action 35, Table 5, with the FWP's goal of "5 million fish" above Bonneville Dam), NOAA B320:34301; (2) is informed by an analysis of habitat potential; (3) uses a method based on best available science to quantify the estimated impacts of limiting factors and actions, *see supra*; and (4) has a research, monitoring, and evaluation program in place that the ISAB said was "needed to effectively evaluate and guide habitat restoration." NOAA B188:16030-31; *see also* 2014 RTC at 24-26. Plaintiffs overlook the material differences between these programs and, rather than undermine NMFS's analysis, the ISAB's analysis shows the strengths of the BiOp's tributary habitat program.[34]

This tributary habitat program is grounded in the best available science on the effects of habitat restoration projects on habitat productivity and fish survival. 2014 BiOp at 230-265. Moreover, the program can be implemented; it has been and will continue to be aggressively implemented through 2018. *Id.* at 281-82. Thus, this dispute is not about the benefits or certainty

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to disburse dedicated funds. Tehan Decl. ¶ 44. As noted, the Action Agencies have a track record of implementation, as does the Nez Perce Tribe, in completing actions under the BiOp. Second, BPA has increased funding levels to the Tribe under to the BiOp because of its demonstrated ability to manage habitat restoration projects. *See* Tehan Decl. ¶ 60. Moreover, nothing in the BiOp requires that these particular actions be funded, because the performance standards in the BiOp are not tied to any particular action. The Tribe's concerns about funding are of a policy nature and do not present a legal challenge to the BiOp.

[34] NWF also cites excerpted informal comments of a science panel that Dr. Lubchenco, then-Administrator of NOAA, convened to review the 2008 BiOp. NWF SJ at 25. Plaintiffs, however, disregard the context of these comments, as previously explained. ECF 1806 at 39 n.33.

of the RPA habitat actions, but whether Plaintiffs believe habitat-based actions should be relied on *at all* in the context of this consultation. *See* OR SJ at 33-36 (preferring mitigation in the mainstem, not tributary habitat). The choice of a particular RPA strategy is a policy decision, and this one, based in part on habitat mitigation, is well grounded in science. Because NMFS rationally determined here that the habitat program addresses limiting factors, is reasonably certain to improve the survival of salmon and steelhead, and is likely to result in the survival improvements identified in 2008, NMFS's analysis is entitled to deference and should be upheld.

C. NMFS Rationally Found That The Estuary Program Will Benefit Salmonids And Assist In Ensuring That The RPA Avoids Jeopardy.

NMFS also reasonably relied on the BiOp's estuary program as part of its jeopardy analysis. The best available science shows that improving conditions in the estuary will improve juvenile salmonid growth and condition and thus the probability of survival. 2014 BiOp at 319-24; NOAA B47:3775-76, 3784. These habitat actions are both restoring opportunities for juvenile salmonids to rear in shallow water and improving the export of prey such as fly larvae to the mainstem migration channel. *Id.*; Krasnow Decl. ¶¶ 7-8. The Action Agencies also have a demonstrated track record of increasing implementation of these actions since 2007. NMFS's review of both the science and implementation was reasoned, and its finding that these actions are expected to provide increased survival benefits of 9% and 6% for ocean-type and stream-type fish, respectively, is sound.

The RPA includes three actions to improve juvenile salmon and steelhead survival in the estuary: (1) habitat improvement actions in 2007-2009; (2) similar actions in 2010-2018; and (3) the development and implementation of a piling and pile dike removal program. RPA Actions 36-38. These actions grew out of NMFS's 2006 draft Estuary Module, which provided planning targets for specific management actions to achieve the 9% and 6% survival improvements. These actions were adopted by the Habitat Collaboration Workgroup and proposed by the Action Agencies in their 2007-08 BA and Comprehensive Analysis. 2008 SCA; *see, e.g.*, 2008 Kratz Decl., ECF 1564 ¶¶ 26-29; Reply Decl. ECF 1650 ¶¶ 23-24. The draft Estuary Module

characterized the benefits of estuary habitat actions as part of the recovery planning process for the Columbia River salmonids and, as such, served as the starting point for the FCRPS estuary habitat program. 2014 BiOp at 319-20; Krasnow Decl. ¶¶ 36-37, 43-46 (explaining science-driven changes to the program). Building from this starting point, the Action Agencies later formed the Expert Regional Technical Group ("ERTG"), comprised of estuary biologists and habitat restoration specialists (including Oregon's representative), as a procedural requirement of RPA 37. 2014 BiOp at 325; Krasnow Decl. ¶¶ 9. The ERTG is an integral part of the estuary program and estimates the survival benefits expected from each habitat action using the best available science. 2014 BiOp at 325-28.

The estuary program's success is founded on two bases: (1) the Action Agencies' ability and commitment to ensure implementation of the projects to achieve defined performance standards by 2018; and (2) the best available science showing that estuary actions are reasonably certain to provide the survival benefits anticipated in the BiOp.

As for implementation, since the Court last reviewed the BiOp, the estuary program has improved in many significant ways:

- Action Agencies have a clear schedule of actions predicted to provide the targeted survival improvements by 2018 and these projects are described with more specificity than in the 2010-13 table that the Court found sufficient in 2011. *See* NOAA B48:4338-80. *NWF v. NMFS*, 839 F.Supp.2d at 1124, 1125-26 (finding the agency sufficiently "identified specific habitat mitigation actions for 2010 through 2013").

- Based on lessons learned from action effectiveness monitoring and the advice of ERTG, the Action Agencies and their partners are now implementing projects that are larger, closer to the mainstem, and focused reconnecting large sections of the historical floodplain and restoring remnant channels. 2014 BiOp at 331; NOAA B48:4219; NOAA B47:3551-53; 4022-33.

- ERTG has created a new "SBU calculator" for calculating survival benefit units[35] that standardizes inputs for scoring the benefits of habitat projects and makes the process more transparent, objective, and repeatable. 2014 BiOp at 326-27; Corps 4:1147-50.[36]

[35] The survival targets for the estuary program, expressed as percentages, are broken into Survival Benefit Units ("SBUs") in order to track progress toward the RPA survival improvement targets. 2014 BiOp at 326.

[36] ERTG has scored all projects begun since 2010, except four projects previously scored under the Remand Workgroup method. 2014 BiOp at 326. ERTG concluded that the survival benefits

- ERTG and the Action Agencies refined their review process by developing a template so that all proposed projects are clearly described and the scoring process is streamlined. 2014 BiOp at 327; NOAA B109; NOAA B48:4219.

- Action Agencies identified additional actions to meet the required SBU targets, if a project proved infeasible. *See* NOAA B47:4022-33; NOAA B48:4338-80.

Indeed, the agencies have materially accelerated implementation since 2011. The 2007-13 period yielded fewer benefits as the agencies invested in significant program improvements. 2014 BiOp at 328-31; Krasnow Decl. ¶¶ 32-33. Beginning in 2012, the Action Agencies introduced a new method for prioritizing restoration opportunities that considers cost-per-SBU (so that an action with exceptional benefits could be funded despite a relatively high cost) and social and technical complexities. The resulting prioritized list formed the basis of the Action Agencies' out-year SBU projections in the 2014-2018 Implementation Plan. NOAA B48:4338-80. The prioritization process ensures that all restoration partners have an achievable workload and projects are assigned that are a good fit for each partner's interests and skills. *See* 2014 BiOp at 329; NOAA B47:3550-53; *see also* Krasnow Decl. ¶¶ 32-33. In addition, the Action Agencies developed more established partnerships to expand capacity, which allows faster progress in developing restoration projects. *See* NOAA B47:3551. Building on its track record of successfully adapting if actions prove infeasible, the estuary program has a concrete "process for identifying replacement estuary projects if a particular action proves infeasible." *NMFS v. NWF*, 839 F.Supp.2d at 1127; Krasnow Decl. ¶¶ 32-33. NMFS's staff tracked the completion of projects in the estuary with the Action Agencies and reviewed the actions proposed through 2018. *See* NOAA C33622. Taken together, NMFS has more than an ample record to conclude that implementation is on track to achieve the survival benefit improvement standards by 2018.

As to sound science, the best available science supports the scientific underpinnings of the estuary program. 2014 BiOp at 320-24. The ERTG's scores for access, success, and habitat capacity are based on its members' professional judgment; a rigorous qualitative process that

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under the 2008 method underestimated the likely SBUs (but NMFS conservatively did not adjust the SBU tally). *Id.*

NMFS concluded represents the best available science. *Id.* at 328. While developing the SBU calculator and based on a review of fisheries literature, ERTG adjusted the Module's benefits for some important estuary management actions. *See* 2014 BiOp at 327; Corps 4:1147-50. In some cases, these adjustments resulted in predicting less benefit to salmonids than anticipated in the Module and, in some cases, more benefits. *See id.*; Krasnow Decl. ¶ 11. Based on these updated expectations, project proponents began to identify estuary projects that were likely to receive high SBU scores, like breaching dikes to reconnect large areas of the historical floodplain to tidal and mainstem flow.[37] Reorientation toward large reconnection projects and away from small riparian restoration actions has marked a major, science-based evolution in the program. *See* Krasnow Decl. ¶¶ 11-12, 46; 2014 BiOp at 325-26. The process is dynamic, with the ERTG meeting monthly to evaluate projects and assess the process based on new scientific information. Corps 6146:187766. The science component of the estuary program is robust and sound.

Plaintiffs do not question the Action Agencies' commitment to achieving the survival benefits. Rather, they contend that it has not been conclusively demonstrated that the estuary program will achieve the mitigation commitments. *See* NWF SJ at 22-24.[38] Plaintiffs demand a

[37] In another example, after the Action Agencies analyzed the piling and pile dike removal program, Corps 3287, NMFS found that it was not likely to produce the anticipated increase in juvenile survival. NOAA C13796; 2014 BiOp at 341. The SBUs attributed to the program in the 2007 BA and Comprehensive Analysis were already part of the SBU requirements for the estuary, 2014 BiOp at 341; Krasnow Decl. ¶ 37; 2008 NOAA SAR S47:D-1-12 (explaining that pile dike removal is a sub-action of the estuary program); 2008 BiOp at RPA Table p. 47, and now will be achieved through other projects under RPA 37. Further, NMFS determined that the total estuary SBUs can be attained without the program after considering and relying on the best available scientific evidence. *See* NOAA C33622.

[38] The RPA's RM&E process is improving the ERTG's understanding of the habitat restoration science. Plaintiffs also argue that an ISAB report issued after the BiOp was finalized undermines NMFS's conclusions. This argument ignores the fact that new information, such as the ISAB review, is continually incorporated into the estuary program to render it more effective. Krasnow Decl. ¶¶ 19-31. Moreover, nothing in the ISAB review demonstrates that NMFS's findings are arbitrary. *Id.* As noted in the BiOp, NMFS considered the scientific literature, including the Action Agencies' Comprehensive Evaluation, and found that it strongly supports the conclusion that habitat improvement actions benefit salmon. *See* 2014 BiOp at 323-24; NOAA B47:3772-76, 3775-76 ("all lines of evidence from the [lower Columbia River estuary] indicate positive habitat-based and salmonid-based responses … habitat restoration activities in the [estuary] are likely having a cumulative beneficial effect"); *see Jewell*, 747 F.3d at 602 (what constitutes the best scientific and commercial data available "belongs to the agency's 'special expertise'").

level of certainty that is not required. NMFS may reasonably make conclusions about the benefits of habitat restoration actions, based on restoration science and the ERTG's expert judgment, even if statistical certainty is unachievable. Here, NMFS considered each project, the stream- and ocean-type SBUs expected, and the method used to develop the scores. NOAA C33150; NOAA C33154; NOAA C33622; 2014 BiOp at 325-40. It found the benefits both reasonable and supported by the best available scientific evidence. 2014 BiOp at 319-40. And NMFS explained that "the Action Agencies' implementation record [shows] that they will implement habitat improvement projects that meet the 9% and 6% survival improvement standards based on the ERTG's final scores." *Id.* at 338. Courts demand only "a reasonable evaluation of the available data," including models used, and NMFS's analysis meets this standard. *Greenpeace Action*, 14 F.3d at 1337 (upholding NMFS's consultation with a team of experts to evaluate the impacts of a commercial fishery on the sea lion, even where there was uncertainty about the expected impacts); *Jewell*, 747 F.3d at 620 (upholding agency's use of one "flawed model" rather than plaintiffs' similarly flawed model in estimating impacts to fish).

Plaintiffs also appear to argue that the estuary program is behind schedule and the estuary actions are insufficiently described. NWF SJ at 23-24; NPT SJ at 21 & 24 (complaining about a lack of back-up projects). As already explained, however, the Action Agencies have a path to completion, and NMFS reasonably concluded that the new types of actions, the concerted implementation effort, and the lists of actions developed provide reasonable certainty that the program will be completed on time. NOAA B48:4338-80. Reflecting this accelerated implementation, the agencies achieved SBUs in 2013 roughly equal to the number produced in the previous six years, and they produced that many again in 2014. Krasnow Decl. ¶ 34.

In short, the estuary program is growing and is based on rigorous evaluation and pragmatic concerns about project feasibility, as well as sound science. Plaintiffs believe that the estuary program will not succeed, but they have provided no concrete evidence to support their claims. Instead, they insist that the agencies show certainty before they implement actions. This is not the law. Congress framed the inquiry around the best available scientific data and required

NMFS to identify an RPA it "believes" is "likely" to avoid jeopardy. 16 U.S.C. § 1536(a)(2), (b)(3)(A); *Jewell*, 747 F.3d at 602. As discussed, *supra*, the ESA does not require "certain" results that are verifiable, detectable, or otherwise free from uncertainty. And for good reason, as no protective actions could be taken in the estuary, tributary, mainstem, or anywhere to benefit listed salmonids were scientific certainty the standard. *See, e.g.*, Tehan Decl. ¶ 77. NMFS applied the correct standards, and its analysis of the estuary program more than passes muster.

D. NMFS Reasonably Concluded That The Tern And Cormorant Actions Will Help Avoid Jeopardizing Listed Salmonids.

Annually, terns and double-crested cormorants in the Columbia River basin prey on millions of juvenile salmonids, including many ESA-listed salmonids, as they migrate to the ocean. Accordingly, among the dozens of actions included in the BiOp to improve survival and recovery, the RPA includes actions to reduce these high levels of predation. Based on other similar successful programs, past experience with dissuasion efforts in the estuary, and the best available science, NMFS reasonably concluded that the Action Agencies' plans, called for by RPA actions 45 and 46, to reduce double-crested cormorant and tern predation, would achieve the targeted benefits. Plaintiffs' arguments to the contrary do not withstand scrutiny.

With respect to double-crested cormorants, the Corps has monitored them on East Sand Island and evaluated their predation on juvenile salmonids since the late 1990s. *See* Corps 1777:93221; Corps 1720:92657-58. The size of this colony increased considerably from 2000 to 2006 and has remained relatively constant at around 13,000 breeding pairs. Consumption of juvenile salmonids by this colony has also dramatically increased since 2000, recently approaching or exceeding 20 million fish. *See* Corps 12:1789-90. Beginning in 2008, the Corps tested non-lethal hazing to reduce nesting area and dissuaded cormorants from nesting in the research area, as the basis for future management plans. *Id.*; *see also* Corps 721; Corps 804; Corps 1720:92655. The 2014 BiOp formalizes this effort with more aggressive plans slated to start in spring 2015 to meet BiOp standards. 2014 BiOp at 38-39; Corps 11:1692-93; Corps 3115:120453; Corps 726. In assessing the cormorant RPA action, NMFS reviewed research from

several other successful cormorant programs to reduce predation and found that it could rely on the Action Agencies' plan to reduce predation to base period levels. 2014 BiOp at 410-11.

Plaintiffs do not dispute that cormorants kill millions of ESA-listed salmonids. Nor do they dispute that successful predation-control programs benefit these salmonids. Instead, relying on a selective quotation from an article taken out of context, they claim that NMFS improperly relied upon a predation reduction program at Leech Lake because it was not limited to cormorant control actions. NWF SJ at 31. The Leech Lake program, however, was not the only data point relied upon by NMFS. The BiOp's bird predation actions are supported by several examples of other successful predation management programs beyond Leech Lake and, moreover, the BiOp relies on a suite of other actions to improve salmonid survival. 2014 BiOp at 411; Graves Decl. ¶¶ 56-57 (explaining why the Leech Lake example does not contravene the BiOp's findings).[39] NMFS's conclusion about the cormorant RPA should be upheld as reasonable, 2014 BiOp at 410-11, and Plaintiffs' selective reliance on an isolated quote should not alter that conclusion.

Caspian terns nesting on East Sand Island in the Columbia River estuary also annually consume millions of smolts. 2014 BiOp at 411. RPA action 45 is designed to address this issue and improve smolt survival by reducing tern pairs at East Sand Island from approximately 9,000 to 3,000 and attracting them to new, alternative nesting sites outside the Columbia Basin. *Id.* at 411, 413. By January 2014, the Corps had already reduced tern nesting habitat on East Sand from 6 to 1.58 acres. *Id*. Despite these successes, terns still prey on more smolts than anticipated. *Id*. Now that the alternative habitat is ready, East Sand nesting habitat will be reduced to one acre and the terns will be attracted to the new habitat. *Id.* at 411-12; *see* Corps 576:65268; Graves Decl. ¶¶ 50-51. This plan is based on past successful management actions. In the late 1990s, the Corps relocated an estuarine colony of terns, reducing smolt consumption to current levels (from

[39] Moreover, contrary to NWF's suggestion, the Leech Lake program is an example of a successful program where several management actions reduced the loss of fish by nearly 90%. Olney Decl., ECF 1982-1:1283. The article also suggests what the agencies already understand – that non-lethal management may produce new colonies and, thus, lethal action like egg oiling may be required to prevent formation of new cormorant colonies. *Id.*; Corps 3115:120453-54. The Corps has built in adaptive management to address these challenges. *See* Corps 1775:93027.

~12.4 million smolts/year to five million) with dissuasion and social attractant techniques. *See* Corps 576:65258, 65288, 65316; Corps 758:75238; Corps 759:75282. Similarly, the Corps attracted terns to new, better-placed habitat outside the Columbia Basin. *See* Corps 806:79821, 79615. In addition to estuary actions, the agencies will haze terns away from Columbia River inland areas as part of the inland avian management plans. 2014 BiOp at 412-13; Corps 806:79473. To be conservative, however, NMFS did not rely on benefits from inland actions in its jeopardy analysis. 2014 BiOp at 413. Based on this record, NMFS reasonably concluded that tern management plans will meet the BiOp performance standards. *Id.*

Despite this reasonable conclusion, Plaintiffs, via Mr. Olney, attempt to discount the tern plans because NMFS did not adjust the benefits of control measures for compensatory mortality (mortality of fish that are likely to die anyway). NWF SJ at 30. Plaintiffs, however, ignore NMFS's analysis and the inconsistency in Mr. Olney's declaration. *See* Graves Decl. ¶¶ 58-61 (explaining that the idea that compensatory mortality is unequal between the impact and the actions taken to address the impact is not scientifically supported); 2014 BiOp at 409-10. NMFS expressly considered whether to apply a *theoretical*, *unknown* compensatory mortality adjustment and decided not to because any compensatory mortality that would apply to reduce predation would also apply to unmanaged predation, and thus it was not important to speculate on how much compensatory mortality is a factor. Plaintiffs' disagreement with NMFS's analysis is not a legal defect. *Trout Unlimited,* 559 F.3d at 959.

E. NMFS Rationally Analyzed The Kelt Program As Well As The Adult Performance Standards.

Another action to improve salmonid survival is RPA action 33, which requires a plan to increase SR steelhead spawners by improving in-river kelt survival and "reconditioning" kelts to improve their ability to spawn again. 2014 BiOp at 383; Corps 257 (kelts are adult fish that may spawn multiple times). The kelt plan involves (1) developing facilities to improve kelts' health before returning them to the river to spawn, and (2) improving kelt survival through in-river system modifications. Corps 54. NMFS has assessed the Action Agencies' progress

implementing the kelt management plan through the regional forum process. NMFS concluded that this plan is reasonably certain to increase the number of spawners by 180 female fish (a 6% survival increase over the baseline). *See* 2014 BiOp at 383-87, 453; NOAA 282:28716-21.

NWF challenges the kelt program as "unwarranted optimism." *See* NWF SJ at 32. The program is not overly optimistic, and NMFS accorded the program the proper weight in assessing its overall contributions to survival and recovery. *See* Graves Decl. ¶¶ 62-70; 2014 BiOp at 383-87. Preliminary results indicate reconditioned spawners are equivalent to or better than first-time spawners. *Id.* ¶ 64. As NWF notes, in 2011, the ISRP reviewed the kelt reconditioning work in the Yakima, Okanogan, and Deschutes River basins. Corps 3673. Although it noted challenges for the program, the ISRP concluded that "long-term reconditioning has demonstrated some promise." Graves Decl. ¶ 65. Recent science and program review has begun to answer many of ISRP's questions. *Id.* ¶¶ 65, 70; 2014 BiOp at 386-87. Moreover, the Action Agencies have improved the kelt program by using weirs to capture more suitable kelts and by constructing a permanent reconditioning facility. Graves Decl. ¶ 66. The Nez Perce Tribe and Columbia River Intertribal Fish Commission participate directly in these efforts. And, in 2012, nine natural origin reconditioned steelhead kelts were released in the Snake River, although NMFS conservatively did not credit these results. NOAA B39:2658. Apart from the reconditioning efforts, NMFS has found that in-river improvements, like operating the ice and trash sluiceway at The Dalles Dam, benefit kelts and may contribute 0.9% to the targeted 6% productivity increase (the equivalent of about 27 additional spawning females). 2014 BiOp at 383. Similarly, upcoming improvements to the Lower Granite Dam juvenile bypass system also provide incidental benefits to kelts. In sum, NMFS did not treat the program as a panacea. But, based on the described improvements, NMFS reasonably concluded that the kelt reconditioning efforts would produce the anticipated survival improvements. *Id.* at 387.

Likewise, NMFS rationally addressed the performance standards for adult survival through the FCRPS. 2014 BiOp at 351-58. In establishing the performance standards, NMFS assumed that adult survival data from 2002 to 2006-2007 represented base period (1980-2000)

survival rates. *Id.* at 352.[40] New empirical data analyzed in 2014 revealed increased survival for three species and decreased survival for three species, as compared to the assumed base period survival estimates. *Id.* at 352-53. Plaintiffs seize on this decrease to argue that survival decreased from base period estimates. NWF SJ at 32. But, as NMFS explained, the data show a decrease from NMFS assumed base period conditions, and there is uncertainty, based on the limited years of data, whether that data differs from the *actual* base period conditions in NMFS's prospective analysis. 2014 BiOp at 357. Regardless, as contemplated, the agencies responded with adaptive management. The Corps expanded its monitoring program, *id.* at 355, 357, and the agencies are evaluating whether spill conditions, harvest, or other factors are leading to decreased adult survival rates. *Id.*; NOAA B99. As NMFS explained, if this RM&E shows decreased survival, the agencies will determine the potential remedies and implement actions as appropriate. *Id*. at 357. Rather than identify a deficiency, Plaintiffs illustrate the RPA's strengths. The RM&E program allows for the early detection of potential issues and then quick implementation of adaptive management actions in coordination with the sovereigns and across the region, as appropriate. *Id.*[41] This is precisely what should be occurring, and it is why this BiOp is sound.

III. NMFS'S ANALYSIS OF THE EFFECTS OF THE RPA ON DESIGNATED CRITICAL HABITAT ADHERES TO THE ESA, AND IS REASONED.

NMFS must also determine whether the RPA is likely to destroy or adversely modify designated critical habitat for the listed salmonids. 16 U.S.C. § 1536(a)(2). The ESA regulations define "[d]estruction or adverse modification" as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." 50 C.F.R. § 402.02. In *Gifford Pinchot*, 378 F.3d 1059 (9th Cir. 2004), the Ninth Circuit concluded that one aspect of the regulatory definition – requiring an appreciable diminishment to "both the

[40] NMFS's prospective analysis, however, used actual survival rates occurring within the base period, because actual survival rates were represented within the existing empirical data used to calculate the extinction risk and three productivity metrics. *See* 2014 BiOp at 357.

[41] Plaintiffs also wrongly argue that the 2008 methods to "predict Snake River steelhead population-level survival improvements are no longer valid," NWF SJ at 32 n.19, as fully explained by Dr. Toole. *See* Toole Decl. ¶¶ 63, 68.

survival and recovery" – did not account for the "recovery needs" of the species. *Id*. at 1069-70. "*Gifford Pinchot*, however, did not alter the rule that an 'adverse modification' occurs only when there is 'a direct or indirect alteration that *appreciably diminishes* the value of critical habitat.'" *Butte Envtl. Council v. U.S. Army Corps of Eng'rs*, 620 F.3d 936, 948 (9th Cir. 2010) (quoting 50 C.F.R. § 402.02)).

The ESA does not prescribe how the adverse modification inquiry shall occur in every ESA consultation. *Gifford Pinchot*, 378 F.3d at 1067. NMFS has filled this gap with its 2005 Hogarth Memorandum, which it has consistently applied for over 10 years. 2008 NOAA B333; *Nw. Envtl. Def. Ctr. v. NMFS*, 647 F.Supp.2d 1221, 1234-35 (D. Or. 2005) (upholding NMFS's application of the Hogarth Memo)).[42] Under this guidance, NMFS focuses on the past, current, and future functioning of the critical habitat's "primary constituent elements" ("PCEs"), which are "those physical and biological features that are essential to the conservation of a given species." 50 C.F.R. § 424.12(b); 16 U.S.C. § 1532(5)(a). By addressing PCEs, NMFS expressly considers the impacts on the conservation (recovery) value of the critical habitat. *Id*. Ultimately, it evaluates "whether, with implementation of the proposed Federal action, critical habitat would remain functional (or retain the current ability for the [PCEs] to be functionally established) to serve the intended conservation role for each species." 2008 NOAA B333:3.

NMFS's application of the Hogarth Memo in the FCRPS BiOp is reasoned. NMFS scrutinized the past, present, and prospective functioning of all of the PCEs, to assess the conservation value of the PCEs and the functioning of broader areas of critical habitat. *See* 2008 BiOp 3-4–3-7 (identifying PCEs); *see, e.g.*, *id*. at 8.2-8, 8.2-11–8.2-14. Like its jeopardy analysis that represents an "all-H" approach, NMFS considered the best available scientific evidence and modeling to evaluate how the RPA will alter the conservation function of each PCE contained

[42] FWS also has issued guidance that provides for the same inquiry as NMFS's Hogarth Memo, and both FWS's and NMFS's guidance are consistent with the Services' proposed regulatory definition of "destruction or adverse modification." 79 Fed. Reg. 27061 (May 12, 2014). *See id*. at 27601 (explaining that FWS's and NMFS's guidance provide for the same "destruction or adverse modification" inquiry). FWS's application of its guidance also has been upheld. *See Rock Creek Alliance v. U.S. Fish & Wildlife Serv*., 663 F.3d 439, 442 (9th Cir. 2011).

within the designated critical habitat. *See id*. at 8-3–8-14. Considering the aggregate effects of the environmental baseline, cumulative effects, and the RPA, NMFS concluded that the RPA will improve or not degrade the conservation function of the PCEs and, in turn, will not destroy or adversely modify the species' critical habitat. *See, e.g*., *id*. at 8.2-31-9.2-32 (SR fall Chinook). In 2014, NMFS confirmed that the RPA is "substantially improving the functioning of many PCEs" and that critical habitat "will retain at least its current ability for PCEs to become functionally established and to serve its conservation role for the species." 2014 BiOp at 477.

Plaintiffs' primary challenge is to NMFS's evaluation of the "safe passage" PCE. *See, e.g*., OR SJ at 27-30. They argue that NMFS's analysis allows for PCEs to "degrade further." OR SJ at 27, 39-42. In other places, they assert that the RPA simply maintains the "status quo." NWF SJ at 47-51. Any version of this argument ignores the record, because the RPA contains numerous actions that are "improving the functioning of the juvenile migration corridor" and, more broadly, "substantially improving the functioning of many PCEs." 2014 BiOp at 388, 477.

"Actions to improve the overall survival of fish passing through the hydro system are an essential part of FCRPS BiOp commitments." NOAA B47:3287; Toole Decl. ¶¶ 38-43 (Table 1); Graves Decl. ¶¶ 16-18. For example, the RPA has resulted in the installation of highly effective surface passage systems (such as spillway weirs) at all lower Snake and Columbia dams. 2014 BiOp at 345; Graves Decl. ¶¶ 18, 39. These systems provide passage routes near the surface where juveniles naturally migrate, and they create flow patterns that increase the number of juveniles migrating through surface passage routes. NOAA B47:3297; 2010 NOAA C13:28 (depicting spillway weirs). Depending on conditions, about 76% to 99% of juvenile fish no longer pass through the dam turbines. NOAA B47:3287; *see, e.g*., NOAA B47:3445-47 (survival rates through each passage route at Bonneville Dam). The RPA also has resulted in the $51.3 million, over-800-foot-long concrete spillwall at The Dalles Dam, constructed to improve "tailrace downstream egress and provide safer conveyance for juvenile fish passing through the immediate tailrace where high concentrations of piscivorous predators are known to occur." NOAA B47:3298, 3448-53; Corps 3047:116225; 2014 BiOp at 345. And the agencies have

implemented numerous other actions to improve the safe passage PCE, including: improving turbine designs to benefit fish; upgrading juvenile bypass systems; relocating outfall locations to reduce predation; engaging in predator control actions; and modifying spill operations to improve egress, among others. 2014 BiOp at 345-46; NOAA B47:3433-3509; NOAA B46.

These actions have led and continue to lead to improved conservation function of the safe passage PCE. Graves Decl. ¶ 39. Juvenile travel times to the ocean, a function of the safe passage PCE, has been substantially improved under this RPA: dam passage time (forebay residence) have been reduced, 2014 BiOp at 359; NOAA B46:3200; NOAA B282:27575-76; and juvenile travel time past all of the mainstem dams has materially improved since 2008, NOAA B47:3296 (Figure 18). Indeed, "[d]uration of travel from Lower Granite to Bonneville Dam is substantially faster during and after installation of surface passage routes compared to earlier equivalent flow years such as 2010 versus 2004; travel speeds are currently faster than they were in the early 1970s period when only four dams were installed in the mainstem river." 2014 BiOp at 441 (citing NOAA B263); *see also* NOAA B46:3220 (subyearling SR fall Chinook travel times from Lower Granite to McNary dams was 11.2 days from 2005 to 2010, "compared to 21.3 days for the same reach … from 1998 to 2004"). Likewise, juvenile survival past the dams and through the system has improved under the RPA: dam passage survival has improved, at times "substantially exceeding" the 2008 BiOp's estimated improvements, 2014 BiOp at 358-59; NOAA B47:3298; and reach survival past all dams has been consistently higher than pre-BiOp conditions, *see*, *e.g.*, 2014 BiOp at 360 (SR steelhead reach estimates were "about double the average survival rates estimates for the Base Period," and higher than the 2008 BiOp's predictions following full RPA implementation); *id.* at 364-66; B46:3204, 3204-10 (Figures 6-11). This RPA is improving the conservation function of the safe passage PCE.

Plaintiffs offer no facts, evidence, or "logic" questioning NMFS's findings. NWF SJ at 51. Plaintiffs argue that the FCRPS is being operated in the same way that led to listing the species, *id*. at 48 & n.33, but ignore all of the changes that have improved safe passage conditions since listing, *see* Graves Decl. ¶¶ 16-18, 39. Plaintiffs argue that FCRPS operations

are slowing "juvenile travel time," NWF SJ at 49, when the facts show the exact opposite, 2014 BiOp at 441; NOAA B263; NOAA B47:3296. They cite another BiOp that "refused to accept critical habitat conditions that would simply continue the impaired condition of the habitat," NWF SJ at 50, but that argument is inapposite here because NMFS did not simply accept the *status quo*. They argue that NMFS's analysis asks whether the PCE can be improved "at some point in the future," NWF SJ at 49, 51, but any fair reading of the record shows that the RPA improves the safe passage PCE now. Plaintiffs argue that NMFS did not analyze "in-river survival levels," NWF SJ at 48, when NMFS modeled and analyzed the survival improvements in the mainstem habitat resulting from the RPA. 2008 BiOp at 7-37–7-43; NOAA B282:28647-68; *Rock Creek Alliance*, 663 F.3d at 443 (critical habitat analysis adequately considers recovery by assessing, *inter alia*, how "recovery rates" are altered).[43] None of these arguments fairly addresses, much less impugns, NMFS's analysis of the safe passage PCE.[44]

Oregon's arguments fare no better. It argues that transitioning earlier to summer spill operations, providing a biological trigger to determine when to end spill in August, and juvenile fish transportation operations, "reduce" spill and degrade in-river migratory conditions. OR SJ at 39-42. Oregon provides no evidence, just speculation, to support its arguments, and NMFS's analysis demonstrates that this speculation is unfounded. 2014 BiOp at 346-47 (transition date), 348-49 (summer spill), 367-76 (transport); Graves Decl. ¶¶ 26-29, 35-38, 75-78. But, even

[43] Plaintiffs further misconstrue *NWF v. NMFS*, where the court faulted NMFS's circular explanation in the 2004 BiOp – that "no harm will result from 'significant' impairments to habitat," even though NMFS did not know the "in-river survival levels" necessary to make that finding. 524 F.3d at 936. Here, NMFS found this RPA will substantially improve the functioning of the PCEs, including safe passage, water quality, natural cover, forage, riparian vegetation, and space. *See* 2008 BiOp at 8.2-31–8.2-32; 2014 BiOp at 477. Thus, NMFS did not find significant impairment to the PCEs, and no similar conflict is present in NMFS's reasoning.

[44] For the same reasons, Plaintiffs reliance on *Nez Perce Tribe v. NOAA Fisheries*, Civ. No. 07-247, 2008 WL 938430 (D. Idaho. Apr. 7, 2008), fails. NWF SJ at 49-50. There, the habitat for the species was "largely in poor or non-functioning condition," and the agency action would further negatively impact that habitat. *Id*. at *3, *5; *see id*. *8 (action "will likely result in the total extinction of the [anadromous fish] subspecies that formerly returned to a particular creek for spawning"). Further, the court found that the listed species was in "long-term decline." *Id*. at *5. These are not the facts of this case. As demonstrated above, the safe passage PCE is functioning: it is supporting the life-history requirements for the species to return in high numbers, and the RPA improves how the PCE functions for the conservation of the species.

assuming some adverse effect, Oregon cannot explain why any incremental effects negate all of the beneficial effects of this RPA on improving the safe passage PCE, which have already demonstrably improved the functioning of the PCE. *See, e.g.*, Graves Decl. ¶ 39.

Plaintiffs' factual arguments are belied by the record, and their legal arguments directly conflict with the ESA. First, Plaintiffs argue that NMFS erred in applying the Hogarth Memo, because *they* frame it as allowing for the continued degradation of the PCEs. *See, e.g.*, OR SJ at 25-27. The Hogarth Memo says no such thing. It speaks in terms of whether the PCEs will "*retain* the *current* ability" to become functionally established. NOAA B333:3. Evaluating whether the conservation function will, at a minimum, be retained in its current condition is consistent with the ESA; the statute focuses on whether the conservation value of critical habitat is "appreciably diminished," not whether it is improved. *See Rock Creek Alliance*, 663 F.3d at 442 (upholding analysis that found the PCEs "are expected to remain functional, albeit at a lower [functional] level"). Regardless, this provision of the Hogarth Memo is inapplicable, as the safe passage PCE is not merely being maintained, but substantially improved.

Second, Plaintiffs argue that any action must restore PCEs to their fully functioning condition to avoid destroying or adversely modifying critical habitat. *See, e.g.*, OR SJ at 25-30. There is no legal basis for this argument as addressed above. Indeed, the Ninth Circuit recently upheld NMFS's adverse modification analysis in another BiOp because it did *not* use a standard of "maximizing habitat." *Locke*, 776 F.3d at 999. *Locke* also declined to fault NMFS for selecting RPA actions on the "low-end" of the flow range necessary to protect habitat, *id*. at 1007, and concluded that NMFS properly directed its inquiry on whether the RPA would "'appreciabl[y] reduce[]' habitat," *id*. at 999. As Ninth Circuit law makes clear, Section 7(a)(2) does not impose a mandate to restore or recover critical habitat. *Id*.; *Butte Envtl. Council*, 620 F.3d at 948 ("An area of a species' critical habitat can be destroyed without appreciably diminishing the value of critical habitat for the species' survival and recovery.").

Finally, Plaintiffs argue that NMFS must determine whether a single PCE is "adversely modified." OR SJ at 28 & n.15. This argument misconstrues the ESA. "Adverse modification

determinations are made in the context of the critical habitat as a whole." *Nw. Envtl. Def. Ctr. v. NMFS*, 647 F.Supp.2d 1221, 1234 (D. Or. 2009); *see* 16 U.S.C. § 1536(b)(3)(A) (directing NMFS to make a determination on effects to "critical habitat"); *id.* § 1532(5)(A) (defining "critical habitat" as all areas included within a broader designation). Thus, for example, an agency may properly evaluate "the loss or degradation of 20,000 acres of critical habitat within the context of six million acres of federal land," so long as "some localized risk" is not "improperly hidden by use of large scale analysis." *Gifford Pinchot*, 378 F.3d at 1075. NMFS performed this inquiry. It considered how the RPA affects all of the PCEs, including PCEs in the estuary, mainstem, and tributary habitats. *See, e.g.*, 2014 BiOp at 314 (tributary habitats); *id.* at 340 (estuary habitats), *id.* at 388, 415 (mainstem habitats). It also considered how the RPA's effects on the PCEs affect the conservation function of the critical habitat designation. *See, e.g.*, *id.* at 477. No "localized risk was improperly hidden" through this analysis, *Gifford Pinchot*, 378 F.3d at 1075, and NMFS's application of the destruction or adverse modification mandate in Section 7(a)(2) fully complies with the law, *see Western Watersheds Project v. FWS*, Civ. No. 13-176, 2014 WL 4853200, at *8 (D. Idaho Sept. 29, 2014) (upholding analysis because "the strong areas would continue to improve and degraded areas would not degrade further").

IV. NMFS RATIONALLY CONCLUDED THAT THE ACTION IS NOT LIKELY TO ADVERSELY AFFECT THE SOUTHERN RESIDENT KILLER WHALE DISTINCT POPULATION SEGMENT.

The Southern Resident Killer Whale ("SRKW") is a distinct population segment of killer whales that ranges from central California to Southeast Alaska and primarily inhabits the Salish Sea and the areas close to the Strait of San Juan de Fuca from July to September. 2014 BiOp at 481; 2008 BiOp at 9-5–9-6. In the 2014 BiOp, NMFS concurred with the Action Agencies' conclusion that the FCRPS is not likely to adversely affect the SRKW. 2014 BiOp at 481-87; 50 C.F.R. § 402.13(a). SRKW are potentially affected by the FCRPS because, although the SRKW diet is variable and not fully understood, in some seasons, their preferred prey is Chinook and some Chinook migrate through the FCRPS. 2014 BiOp at 483-84, 486; 2008 BiOp at 9-14. But the FCRPS hatchery production of Chinook offsets dam-caused Chinook mortality, so there is no

net reduction in SRKW prey from the FCRPS. 2014 BiOp at 486-87. NMFS's conclusion that the FCRPS would not adversely affect the SRKW is based on this reasonable analysis and should be upheld. *See Forest Guardians v. Johanns*, 450 F.3d 455, 457-58 (9th Cir. 2006) (upholding the informal consultation regulatory framework allowing NOAA to determine, in the first instance, whether the agency action is likely to adversely affect listed species).

The broad suite of actions analyzed in the FCRPS RPA does not affect Chinook availability, so NMFS's "not likely to adversely affect" conclusion was reasonable. As noted above, hatchery production of chinook offsets dam-caused mortality, resulting in no net effect on Chinook prey availability. Moreover, focusing on the FCRPS impacts to Chinook provides a conservative estimate of potential effects to SRKW because the abundance of all salmon and other potential prey species is orders of magnitude larger than the total abundance of Chinook in coastal waters. 2008 BiOp at 9-9; 2014 BiOp at 486. And much of the summer diet of SRKW comes from another river system entirely, the Fraser River. 2014 BiOp at 483. Further, NMFS found that Chinook returns exceed the predicted energetic needs of the SRKW. *See, e.g.*, 2014 BiOp at 484-85, 486-87; 2010 NOAA BB12; 2008 NOAA B364:II-82.

NWF's criticisms of NMFS's approach are without merit. NWF first advances the wrong legal standard, arguing that NMFS should have determined whether the environmental baseline (*i.e.*, historical declines in salmonid populations) adversely affects the SRKW. NWF SJ at 53-54. NMFS, however, properly engaged in informal consultation, which under the regulations requires NMFS to evaluate only whether the "agency action" – here, the RPA – is "likely to adversely affect the listed species." 50 C.F.R. § 402.13(a);[45] *see also Conservation Cong. v. U.S. Forest Serv.*, 720 F.3d 1048, 1055 (9th Cir. 2013) (explaining that the formal consultation regulatory requirements do not apply to informal consultation). NMFS was required to evaluate whether the RPA (the "agency action") is likely to adversely affect the SRKW, and NMFS performed the requisite legal inquiry by evaluating whether *the effects of the FCRPS and RPA*

[45] Plaintiffs' suggestion that an email, taken out of context, displaces the consultation standard under the ESA is unavailing. *Cf.* NWF SJ at 54 n.40.

are likely to adversely affect the SRKW. *See* 2014 BiOp at 486-87. It is well settled that the "'agency action' at issue" does not "include all independent or baseline harms to listed species," such as the historical declines that have occurred under past actions. *NWF v. NMFS*, 524 F.3d at 930; *see also* ECF 1559 at 78-79. Thus, Plaintiffs' arguments that the relevant inquiry is whether historical declines have endangered SRKWs, rather than whether the RPA is likely to adversely affect the whales, fundamentally misconstrues the nature of an informal consultation under NMFS's regulations – a framework specifically upheld by the Ninth Circuit. *Johanns*, 450 F.3d at 457-58. In short, NMFS evaluated whether the RPA is likely to adversely affect the whales under the proper standards. *See* 2014 BiOp at 486-87.

In any event, and contrary to NWF's assertion, NWF SJ at 55-56, to the extent the best available science allows, NMFS *did* perform a thorough analysis and considered whether existing Chinook are insufficient to meet SRKW prey needs, assuming a large role of Chinook in the diet, and it further examined the environmental baseline and cumulative effects, tantamount to a formal consultation. *See* 2008 BiOp at 9-9 to 9-14; SCA at 9-9 to 9-14. NMFS calculated the energetic needs of the SRKW as numbers of Chinook, 2008 BiOp at 9-10, 2008 NOAA B372, under a variety of different assumptions about the Chinook composition of the SRKW diet. *Id.* (2008 NOAA B372:8.). The upper bound of fish required, assuming a high share of Chinook consumption, was 221,000 Chinook from November to May. *Id.* Taking into account recent harvest and ocean abundance estimates, there are approximately 3.5 million adult Chinook in the coastal waters within the SRKW range. *Id.* at 9-10; NOAA B47:3273; *see also* 2008 NOAA B364:II-82 ("salmon distribution is believed to have remained consistent in this region since at least the 1960s"). In 2010, NMFS confirmed that, even with all sources of mortality to Chinook (*i.e.*, including natural mortality), the Chinook available in each season, even in poor Chinook years, exceeded the estimated metabolic needs of the whales. *See* 2010 NOAA BB12; *cf.* NWF SJ at 55 n.41. In 2014, NMFS examined the best available scientific data on SRKW needs and accepted the suggestion to use a more conservative estimate of daily energy expenditures. *See* 2014 BiOp at 484-85. Even using this more conservative assumption, NMFS reached the same

conclusion. *Id.* NWF presents no better data to suggest that the Chinook returns are insufficient for the SRKW and cites no "new" information about the health of the SRKW population.

Importantly, Plaintiffs do not dispute NMFS's finding that the "Columbia basin hatchery production offsets losses to the killer whale prey base due to the existence and operation of the hydrosystem." 2014 BiOp at 483. Instead, NWF opines that the FCRPS will adversely affect and may jeopardize the SRKW, presumably because of "declining" salmon, but fails to support that statement with any data. Rather than confronting NMFS's analysis, NWF instead challenges NMFS's conclusions using statements taken out of context from other BiOps and NMFS's documents. *See* NWF SJ at 52-54. For example, NWF relies on a statement in the SRKW Recovery Plan that "[p]erhaps the single greatest change in food availability for [SRKW] since the late 1800s has been the decline of salmon from the Columbia River basin." NWF SJ at 52, 54 (B364:II-82). Later in that same Plan, however, NMFS explains "[w]ith so many fish once present, salmon returning to the Columbia River mouth *may have been* an important part of the diet of Southern Residents." 2008 NOAA B364:II-82 (emphasis added); 2008 NOAA B236:81 (historical distribution of SRKWs not entirely understood). NWF similarly misquotes a biological opinion that addresses ocean salmon fisheries. NWF SJ at 53. The passage NWF cites further explains "some of our conservative assumptions used to develop ratios of prey available to the whales' needs may be overly conservative, particularly for the October to April time period." *See* 2010 NOAA BB280:39. That opinion ultimately concluded that "the most conservative scenario may not be the most likely scenario, particularly in coastal waters." *See id.* at 58. NWF fails to present any data that undermines NMFS's findings.[46]

[46] In the CVP BiOp, for example, NMFS concluded that the agency action, as proposed, would permanently reduce listed winter-run and spring-run Chinook prey available to the killer whales and have other negative impacts to listed and unlisted Chinook. 2008 NOAA BB281:440, 43-44, 573-74. These findings bear no resemblance to the situation before NMFS here, as the FCRPS RPA is not likely to result in either short-term or long-term reductions of Chinook stocks available to killer whales in their coastal waters. 2014 BiOp at 486. NMFS's conclusions in the FCRPS BiOp were reached in consideration of past biological opinions, data, and analyses. *See, e.g.*, 2014 BiOp at 487; 2010 BiOp §2:133; 2010 NOAA CC201; 2008 NOAA B12. Additionally, the best available science used in the 2014 FCRPS consultation provides a different estimate of the calories per salmon than used in the CVP BiOp. *Cf.* NWF SJ at 53 n.39.

In sum, NMFS thoroughly examined the prey needs of the SRKW and reasonably concluded the action is not likely to adversely affect the SRKW. *See* 2008 BiOp at 9-16 to 9-19, 9-21; 2010 BiOp, § 2, at 134; 2014 BiOp at 487. Because NWF presents no credible challenge to the fundamentals of this analysis, NMFS's expert judgment must be upheld.

V. RECLAMATION AND THE CORPS HAVE COMPLIED WITH THE NATIONAL ENVIRONMENTAL POLICY ACT.

NEPA requires that a federal agency "consider every significant aspect of the environmental impact of a proposed action and inform the public that it has indeed considered environmental concerns in its decisionmaking process." *Earth Island Inst. v. U.S. Forest Serv.*, 351 F.3d 1291, 1300 (9th Cir. 2003). The record here demonstrates that the Corps and Reclamation have complied with this requirement regarding their operations and implementation of RPA actions at issue here. *See* USBR 1:5; Corps 1:11-12.

While the agencies here group certain actions and projects together as the FCRPS for purposes of ESA consultation, as a legal matter these projects and actions are authorized by distinct Congressional Acts and directives. The three Action Agencies have disparate responsibilities for the operation and maintenance of the FCRPS: (1) the Corps operates three storage projects, and nine "run-of-the river" projects; (2) Reclamation operates two storage projects; and (3) BPA transmits and markets the hydropower generated by the FCRPS, and funds an extensive fish and wildlife protection, mitigation, and enhancement program under the Northwest Power Act, 16 U.S.C. §§ 839-839h. Corps 2:117-18.[47] Since the first salmon listing in 1991, the agencies have undertaken no less than *six* Environmental Impact Statements ("EISs") analyzing a multitude of FCRPS operations and actions.

Starting in 1992, the Action Agencies prepared the Columbia River Salmon Flow Measures 1992 Options Analysis EIS ("OA/EIS"). Corps 555.[48] The OA/EIS evaluated water

[47] The Ninth Circuit has exclusive jurisdiction over BPA's final actions. 16 U.S.C. § 839f(e)(5). Thus, BPA's NEPA compliance and those RPA actions which are BPA's sole responsibility are not at issue here. *See Nw. Res. Info. Ctr. v. NMFS*, 25 F.3d 872, 874-75 (9th Cir. 1994).

[48] Previously the agencies prepared individual EISs for the continued operation of many of the projects. *See* Corps 588, 643, 717, 784, 788, 790, 791, 792, 793, 794, 795. These EISs evaluated

management alternatives for operating project dams to improve juvenile and adult anadromous salmon migration conditions for a one-year term, *id.*:53110-11, 53140-46, and supplemented it one year later in 1993 ("1993 SEIS"). Corps 558:54070-72, 54091-104.

In 1995, the agencies culminated a multi-year coordinated system operation review with the issuance of the Columbia River System Operation Review Final EIS ("SOR EIS"). Corps 562:55278. The SOR EIS analyzed 13 system operation strategy alternatives for the FCRPS, addressing five major operating elements pertaining to improving conditions for anadromous fish: (1) juvenile passage; (2) spill at projects; (3) reservoir draw down; (4) flow augmentation; and (5) storage project operations. Corps 561:55210-38; Corps 562:55383-949, 55662-66; 2008 Corps 5912:120708-39, 120744-51 (qualitative analysis of alternatives to transport (including dam removal and increased spill) in appendix). The SOR EIS provided an exhaustive analysis of the environmental impacts of the 13 alternatives. *See* Corps 562:55520-616; Corps 563.

Then, responding to an action called for in the 1995 BiOp RPA, in 2002 the Corps issued the Lower Snake River Juvenile Salmon Migration Final Feasibility Report/EIS ("FR/EIS"). Corps 569. The FR/EIS evaluated structural improvements and operations aimed at increasing the survival of juvenile anadromous fish through the four FCRPS projects on the lower Snake River. *Id.*:59824-27. It evaluated four alternatives: (1) continuing operation of existing and planned fish passage facilities and project operations (plus spill up to spill caps); (2) maximizing fish transport and minimizing in-river migration; (3) implementing adaptive migration by balancing in-river and transport methods, including by optimizing voluntary spill operations and incorporating improvements such as surface bypass collectors, removable spillway weirs, etc.; and (4) breaching the four lower Snake River dams to create a 140-mile stretch of river with near-natural flow. *Id.:*59804-11; 60130-476.

In 2006, the Corps and Reclamation issued the Upper Columbia Alternative Flood Control and Fish Operations EIS. Corps 582:66776. This EIS evaluated a proposal to allow the

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the impacts of operating the projects within the full range of operations for their intended purposes, *i.e.*, navigation, flood control, hydropower, recreation, irrigation, and fish & wildlife.

agencies to more reliably supply spring and summer flows through implementation of "variable discharge flood control" (or "VARQ flood control") at two storage projects, which was an RPA action called for in the 2000 and 2004 NMFS BiOps. *Id*.:66800-45.[49]

In addition to these EISs, the agencies have prepared NEPA analyses, when required, for a variety of the actions called for in the various BiOps over the years. A non-exhaustive list includes: Reclamation's 2004 Banks Lake Drawdown EIS, addressing proposals to continue providing and to increase flow augmentation, USBR 62763:62766-72; 86-91; the Corps' 2005 EA evaluating a proposal to implement an annual Avian Predation Deterrent program at its eight run-of-the-river fish passage dams, Corps 766:75586-99; Reclamation's 2009 EA addressing incremental releases from Lake Roosevelt, including to enhance stream flows for fish, USBR 60365:60365-78; and the Corps' 2014 Inland Avian Predation Management Plan EA, addressing alternatives to reduce avian predation on salmonids in the inland Columbia River Basin. Corps 806:79470-84. In addition, the agencies' decision documents addressing the 2008, 2010, and 2014 BiOps stated that additional NEPA analysis will be completed for certain RPA actions, such as structural modifications, habitat actions, and hatchery reform actions. *See* Corps 1:10; USBR 1:62.[50] The agencies are carrying through on this commitment. *See, e.g*., Corps 661, 726, 803, 914, 2964; USBR 56116. *See also Northcoast Envtl. Ctr. v. Glickman*, 136 F.3d 660, 670 (9th Cir. 1998).

On top of this NEPA analysis, as described earlier, the 2008 BiOp and supplements constitute the most comprehensive and vetted BiOps ever produced by NMFS. Per the Court's 2005 remand order (ECF 1087), the agencies engaged in a nearly three-year-long transparent and collaborative process in which all regional States and Tribal sovereigns had a seat at the table and all other interested stakeholders had multiple opportunities for input and comment (both at

[49] In addition, BPA prepared its Fish and Wildlife Implementation Plan EIS, which evaluated a range of policy directions for the implementation and funding of actions for fish and wildlife mitigation and recovery, and considered the impacts of wildlife management activities such as habitat improvement and hatchery management. *See, e.g.,* USBR 63580:63687-89, 63750-55.

[50] While Reclamation's 2014 Decision Document does not mention the NEPA analyses, it incorporates by reference its 2008 Decision Document, which does. USBR 1:5, 62.

public meetings and in writing). ECF 1989 at 10-11. This open process continued with the Obama Administration's review of the 2008 BiOp, which also included public meetings, including with then-NOAA Administrator, Dr. Lubchenco. *Id*. at 15-16. Likewise, the 2010 and 2014 BiOps were subject to review and comment, and sovereign collaboration. *Id*. at 15-18.

It is against this backdrop that Plaintiffs raise a NEPA challenge. Tellingly, despite vigorously challenging every BiOp issued by NOAA since 2000, the first time Plaintiffs have raised NEPA during this 14-year litigation is this *Seventh* Supplemental Complaint now before the Court. *See* ECF 1928. Indeed, despite the numerous opportunities for input described above, Plaintiffs did not even mention any NEPA concerns in their comments to the agencies, instead waiting to raise them for the first time in litigation before the Court. Plaintiffs' previous silence on NEPA and their newly-discovered interest in the issue now are not surprising. The reality is that Plaintiffs cannot seriously complain that the public has not had abundant opportunities for input or that the actions at issue here have not been exhaustively poked, prodded, and vetted such that agency decisionmakers are fully informed. Their true complaint is that they do not like the outcome of the process. That is not sufficient to prevail on a NEPA claim. *Drakes Bay Oyster Co. v. Jewell*, 747 F.3d 1073, 1090-91 (9th Cir. 2013) (*en banc*) (NEPA analysis will not be struck down where plaintiffs could not show prejudice and decisionmakers were fully informed).

A. Plaintiffs Have Waived Their NEPA Claims.

Prior to challenging an agency's NEPA compliance in court, a plaintiff must first raise its concerns with the agency, *see Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 967 (9th Cir. 2006), to "allow the agency to give the issue meaningful consideration." *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 764 (2004). As the Supreme Court has noted, "administrative proceedings should not be a game or a forum to engage in unjustified obstructionism by making cryptic and obscure reference to matters that 'ought to be' considered and then, after failing to do more to bring the matter to the agency's attention, seeking to have that agency determination vacated on the ground that the agency failed to consider matters 'forcefully presented.'" *Vt. Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 553 (1978). Failure to do so results in waiver of the right

to raise the issue before the court. *See N. Idaho Cmty. Action Network v. Dep't of Transp.*, 545 F.3d 1147, 1156 (9th Cir. 2008).

Here, Plaintiffs did not simply make cryptic references to NEPA: they failed to raise NEPA concerns at all. Despite taking advantage of the numerous opportunities for participation in the public processes leading up to the 2008 and 2104 BiOps' issuance and the Action Agencies' decisions to implement the RPA actions, Plaintiffs *never* notified the agencies that they believed the NEPA documents were inadequate or that different NEPA processes than those being followed were required. Indeed, Plaintiffs (and amicus Nez Perce Tribe) provided formal comments on two progress reports, the draft 2013 CE, the draft BiOp, and the draft implementation plan—which specifically set forth the agencies' plan going forward in implementing the RPA actions. Corps 25; Corps 20; Corps 13:2606-13; 2636-65; Corps 10:1601-14; 1621-46; Corps 6. Yet not once did Plaintiffs inform the Action Agencies that they believed the plans to implement the RPA actions violated NEPA because of inadequate analyses.

This failure is compounded by the fact that Plaintiffs, had they felt that NEPA compliance was an issue, could have raised this claim when challenging the 2000, 2004, 2008, and 2010 BiOps, and the accompanying decision documents, which each described the agencies' NEPA compliance. Consistent with this failure to raise their NEPA concerns during the 14 years of litigation, none of the Court's previous remands mention any need to do additional NEPA on remand. Following the remand in 2011, the Action Agencies have expended considerable time and effort addressing those issues that Plaintiffs and others identified during the administrative process. Had Plaintiffs timely notified the Action Agencies of any NEPA concerns, the agencies would have included these issues in their consideration. Because Plaintiffs failed to structure their participation to allow the Action Agencies to timely address their contentions, they have waived their claims that the agencies' NEPA compliance is inadequate. *See Hankins*, 456 F.3d at 967; *United States v. W. Radio Serv.*, 869 F. Supp. 2d 1282, 1286 (D. Or. 2012) ("Even under the Ninth Circuit's lenient standard, however, Plaintiffs did not raise—even implicitly or inexactly—their segmentation and cumulative impact arguments before the agency").

Nor may Plaintiffs avoid waiver by claiming that waiver is inapplicable because an "agency bears the primary responsibility to ensure that it complies with NEPA." *Pub. Citizen*, 541 U.S. at 764; *Ilio'ulaokalani Coa. v. Rumsfeld*, 464 F.3d 1083, 1091-92 (9th Cir. 2006). The agencies have a demonstrated record of NEPA compliance both with respect to system operations and implementation of RPA actions. They have proceeded in this same manner with full notice to the public, without either objection or judicial challenge to the contrary, for years. If Plaintiffs believed this method of NEPA compliance was not satisfactory, it was incumbent on them to raise the issue with the agencies. Having failed to do so, their claim is barred.

B. A Single EIS Is Not Required Under NEPA.

Even if Plaintiffs had not waived their NEPA claims, their arguments fail on the merits. Perhaps recognizing that extensive NEPA analysis has been, and continues to be, undertaken on all manner of FCRPS operations, Plaintiffs instead make the formalistic claim that the agencies' NEPA compliance can only be satisfactory if the RPA was analyzed in a single EIS. However, this is not the law. NEPA's implementing regulations and Ninth Circuit law demonstrate that the Action Agencies are not required to prepare a single NEPA document addressing their decisions to implement the RPA actions for which they are responsible.

Under the regulations, agencies should consider certain closely related actions, including, as relevant here, "connected actions,"[51] in the same EIS. *Hankins*, 456 F.3d at 969 (citing 40 C.F.R. § 1508.25). But when "one of the projects [at issue] might reasonably have been completed without the existence of the other, the two projects have independent utility and are not "'connected' for NEPA's purposes." *Id*. (citing *Dombeck*, 304 F.3d at 894). Agencies have considerable discretion in defining the scope of an EIS, and for good reason. Such determinations "require[] the weighing of a number of relevant factors, including the extent of the interrelationship among proposed actions and practical considerations of feasibility.

[51] While "cumulative actions" also should be evaluated in a single EIS under Section 1508.25(a)(2), the Ninth Circuit has generally applied Section 1508.25(a)(2) to parallel actions that are distinct projects, but which are tied together through having similar impact, onus, and region. *See Native Ecosystems Council v. Dombeck*, 304 F.3d 886, 895 (9th Cir. 2002).

Resolving these issues requires a high level of technical expertise and is properly left to the informed discretion of the responsible federal agencies." *Kleppe v. Sierra Club*, 427 U.S. 390, 412 (1976). Further, a court must not require an agency to combine the environmental analyses of separate actions when doing so "would require the government to do the impractical." *Hankins*, 456 F.3d at 969 (quotation omitted)); *Kleppe*, 427 U.S. at 414 (noting that regardless of "environmental interrelationships … practical considerations of feasibility might well necessitate restricting the scope of comprehensive statements").

Here, the RPA is not comprised of "connected actions" and evaluating them altogether would be impractical. The 74 RPA actions encompass a broad range of actions including flow and spill actions, habitat restoration, and predation control measures, among others. Corps 7:1278-79; NOAA B281:27401-98. They are administered by disparate Federal agencies under distinct statutory authorizations, occur over different time horizons, and involve wholly different activities (*i.e*. hydro-dam operations, habitat restoration, and a multitude of other actions). While the actions generally have the same goal—improving survival of anadromous fish—they would still exist independently. *See PCFFA v. Blank*, 693 F.3d 1084, 1098-99 (9th Cir. 2012) ("two actions are not connected simply because they benefit each other or the environment").[52]

Moreover, evaluating such disparate actions as (1) spring and summer spill operations at the mainstem dams, (2) tributary restoration actions in Idaho, and (3) managing cormorants in the estuary, in the same EIS, would create inefficiencies in every stage of the NEPA process, from scoping to preparation of an unwieldy, enormous final document. This is particularly so because some RPA actions are necessarily at varying stages: some are complete, some are ongoing, and some remain in the planning stage. *See generally* Corps 9:1290-1370. *See also Wetlands Action Network v. U.S. Army Corps of Eng'rs*, 222 F.3d 1105, 1119 (9th Cir. 2000). It would also be impractical for the agencies to have to prepare a new, comprehensive EIS each

[52] Of course, some of the various RPA actions are appropriately addressed together—for instance certain RPA actions related to the operation of the hydro-system. That is exactly what the Action Agencies did in the SOR EIS. *See supra* at 60.

time NMFS or FWS issues an RPA following the Section 7 consultation process. Preparation of the BiOp and RPA in this case required years of analysis and review, as did the underlying NEPA documents addressing different components of the FCRPS.[53]

In fact, the Ninth Circuit has already recognized that a single EIS is not required for all actions related to the FCRPS. In *Northwest Resource Information Center v. NMFS*, 56 F.3d 1060 (9th Cir. 1995), plaintiffs made a "connected action" argument for the 1993 SEIS, which involved water management modifications to benefit salmon. The Ninth Circuit rejected their argument "that the transportation program and the flow improvement measures are so interdependent as parts of the larger action of improving the survival of the salmon that they must be addressed in the same NEPA document." *Id*. at 1069. The court explained:

> [M]easures involving harvest limits, hatchery releases, and habitat maintenance are also interdependent parts of every action taken to benefit the salmon. While we cannot allow an agency to segregate its actions in order to support a contention of minimal environmental impact, … *we also cannot force an agency to aggregate diverse actions to the point where problems must be tackled from every angle at once. To do so risks further paralysis of agency decisionmaking.*

Id. (emphasis added). This aggregation of diverse actions—and resulting paralysis of agency decisionmaking—is exactly what Plaintiffs are asking the Court to require here. The Ninth Circuit has already foreclosed this argument, and Plaintiffs' NEPA claim fails.

Plaintiffs' reliance on *Jewell*, 747 F.3d 581, does not alter this conclusion. *See* NWF SJ at 56. The *Jewell* court held that Reclamation, as action agency responsible for the Central Valley Project, violated NEPA by failing to prepare an EIS before implementing a BiOp. 747 F.3d at 655. *Jewell* is inapposite for several reasons. First, the question in *Jewell* was *whether* an action agency must comply with NEPA when implementing actions addressed in a BiOp, not *how* it must do so. *Jewell* did not address whether an agency can comply with NEPA by ensuring that RPA actions were analyzed in existing and separate NEPA analyses, as here. *Id.* at 641 (noting absence of any NEPA documentation). Second, *Jewell* focused on a narrow subset of actions

[53] By way of illustration, the SOR EIS process took over five years, Corps 565:58871-72, and the FR/EIS process took seven years, Corps 572:64796-99.

related to operational components and thus did not hold a single EIS was required for the entire RPA. *See id.* at 592 (noting that "[t]he alternatives recommended by the FWS would reduce the water exported from northern California to southern California through the . . .[p]rojects."); *San Luis & Delta-Mendota Water Auth. v. Salazar*, 686 F.Supp.2d 1026, 1042 (E.D. Cal. 2009) (for NEPA compliance, "the appropriate focus is 'Project operations'").[54] Third, *Jewell* addressed RPA implementation encompassing a narrower range of actions by a single action agency. 747 F.3d at 598 (noting that "FWS recommended five components and listed six separate actions as [RPAs]"). The circumstances are not comparable here.

C. Plaintiffs Fail To Demonstrate A NEPA Violation For Any RPA Action.

Their primary contention having failed, Plaintiffs alternatively could attempt to demonstrate a NEPA violation with respect to a specific RPA action or actions, but they do not even try to do so. Plaintiffs bear the burden of demonstrating a NEPA violation with respect to any such claims. *See Te-Moak Tribe v. Dep't of Interior*, 608 F.3d 592, 605 (9th Cir. 2010); *Sierra Club v. Marita*, 46 F.3d 606, 619 (7th Cir. 1995). They have not met their burden, because they have not demonstrated that any of the RPA actions for which the Corps or Reclamation were responsible were not adequately analyzed under NEPA.

As discussed above, the agencies have evaluated, or committed to evaluating, the environmental impacts of the RPA actions in compliance with NEPA. Moreover, many of the RPA actions—such as planning and reporting—will not themselves have an environmental impact and therefore need not be evaluated in specific NEPA analyses. *Douglas Cnty. v. Babbitt*, 48 F.3d 1495, 1505 (9th Cir. 1995) ("NEPA procedures do not apply to federal actions that do nothing to alter the natural physical environment"); *Ka Makani 'O Kohala Ohana. v. Water Supply*, 295 F.3d 955, 962 (9th Cir. 2002) ("preliminary planning activities" need not be

[54] In determining that FWS did not have to prepare an EIS, the Ninth Circuit expressly relied upon Reclamation's Federal Register notice of intent to prepare an EIS. *Id.* at 642 n.47 & 644. The notice of intent cited by the Ninth Circuit makes clear that Reclamation's intended EIS was limited to considering "*operational components* of the 2008 USFWS and the 2009 NMFS [RPA]." 77 Fed. Reg. 18858, 18860 (March 28, 2012) (emphasis added).

evaluated as connected actions). And some RPA actions have been completed, while others have been terminated or replaced. *See* Corps 9:1309-14, 1322-23, 1330, 1334, 1352, 1359; Corps 726. Any claims raising NEPA challenges to those actions would be moot. *See Friends of the Earth. v. Bergland*, 576 F.2d 1377, 1379 (9th Cir. 1978). In sum, by failing to demonstrate a NEPA violation with respect to the implementation of some specific RPA action or actions, Plaintiffs have failed to meet their burden.[55]

D. The Action Agencies Do Not Need To Supplement Their NEPA Analyses

The closest Plaintiffs get to making a specific argument that the Action Agencies violated NEPA is their argument that "most of the NEPA documents" that the Action Agencies rely upon are "impermissibly stale." NWF SJ at 58. As shown below, this argument fails as well.

Where major Federal action remains to occur, an agency must supplement its NEPA analysis in light of new information that shows "that the remaining action will 'affect the quality of the human environment' in a significant manner or to a significant extent not already considered." *Marsh*, 490 U.S. at 374 (citation omitted); 40 C.F.R. § 1502.9(c)(1). However, the new information or circumstances must show a "seriously different picture of the likely environmental harms stemming from the proposed project," in order for supplemental NEPA to be required. *Tri-Valley CAREs v. U.S. Dep't of Energy*, 671 F.3d 1113, 1130 (9th Cir. 2012).

Thus, to prevail Plaintiffs must do more than simply assert that the agencies' NEPA analyses are dated: they must demonstrate that the new information is sufficiently material that the agency's failure to supplement specific analyses violated NEPA. *See All. for the Wild Rockies v. U.S. Dep't of Agric.*, 772 F.3d 592, 607 (9th Cir. 2014) (upholding determination plaintiff failed to meet burden of demonstrating need for supplemental NEPA). Yet, Plaintiffs do

[55] The range of RPA actions that Plaintiffs could challenge is limited, because Plaintiffs would have to demonstrate standing for any such challenge. To do so, Plaintiffs would need to show injury to a concrete interest that is fairly traceable to the challenged RPA action(s). *See Summers v. Earth Island Inst.*, 555 U.S. 488, 493 (2009). But Plaintiffs' asserted injury results from the operation of the FCRPS projects only. *See* NWF SJ at 2; OR SJ at 4; Bogaard Decl., ¶ 8; Hamilton Decl., ¶ 8; Sedivy Decl., ¶ 10; Redman Decl., ¶ 6. They have not, for instance, claimed any injury resulting from efforts related to habitat restoration, predation control, etc. Plaintiffs therefore have not established standing to challenge those RPA actions under NEPA.

not discuss why any of the relevant NEPA analyses no longer accurately identifies the environmental impacts of the actions evaluated. *See* NWF SJ at 59; OR SJ at 46.

Moreover, none of the four issues they collectively list—namely: (1) new listings under the ESA; (2) integration of new power generation to the Northwest energy grid; (3) new information on spill; and (4) new information on climate change—present a seriously different picture of environmental impacts. First, the additional ESA listings are not significant because the focus of the SOR EIS and other analyses was to enhance conditions for "all salmon," not just listed populations. Corps 562:55278. *See also Swanson v. U.S. Forest Serv.*, 87 F.3d 339, 344 (9th Cir. 1996) (new listing not a "significant new circumstance"). Second, Plaintiffs provide no detail as to why integration of new power generation should alter the analyses. Third, with respect to spill, neither study they cite provides conclusive data about the benefit of increased spill—but regardless, the SOR EIS acknowledged the potential benefits of increased spill, and evaluated alternatives that relied exclusively on spill for juvenile passage. Corps 562:55396-97.

Nor do Plaintiffs provide any discussion of why the Action Agencies' NEPA analyses were inadequate in light of new information on climate change. Many of the agencies' NEPA analyses address climate change, or at least effects arising from ocean/climate regime shift. *See* Corps 569:60234-39; Corps 582:66813, 67063-65, 67300-045; USBR 63580:63858-60; USBR 55553:55661-62. Plaintiffs, moreover, ignore the fact that the Agencies' decision documents appropriately relied upon—and expressly identified—the BiOp's evaluation of climate change impacts combined with impacts from FCRPS operations. *See, e.g.*, Corps 4:439-51; Corps 1:6 & n.12; Corps 3:210-12. *See also Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1012 (9th Cir. 2006) (agency can rely on analysis in BiOp in making NEPA determinations).

Courts have refused to find a NEPA violation in analogous circumstances. For instance, in *Alliance for the Wild Rockies v. Weber,* 979 F. Supp. 2d 1118, 1127-28 (D. Mont. 2013), the court upheld a decision by the Forest Service to rely on a categorical exclusion (and therefore not prepare an EA or EIS) for a thinning project that was in the vicinity of designated critical habitat. The court found that the Forest Service properly relied upon a Biological Assessment that

determined that no impact to critical habitat would result. *Id.*; *see also AquAlliance v. Bureau of Reclamation*, Civ. No. 14-945, 2014 WL 3401390, at *18 (E.D. Cal. July 11, 2014) ("an ESA document can be helpful" in addressing significance). Here, the Decision Documents expressly cite to and rely upon analyses of climate change undertaken for the BiOp, and it would serve no purpose under NEPA to require supplementation on this basis. *Robertson v. Methow Valley Cit. Council*, 490 U.S. 332, 349 (1989) (the purpose of NEPA is to ensure "that important effects will not be overlooked or underestimated . . ."). Plaintiffs' claims fail.

CONCLUSION

When we look up from the minutia, we see that the fish are doing well. Oregon now opens significant commercial and recreational fisheries. The Nez Perce Tribe is pleased with the health of SR fall Chinook. And the region works cooperatively to implement one of the largest restoration endeavors in the United States. Indeed, throughout this process, the Federal agencies have aggressively sought the input and opportunities for collaboration with all interested sovereigns and stakeholders, and they have made significant progress in ensuring that these efforts both occur and facilitate increased protections to ESA-listed salmonids. The reality of what is occurring on-the-ground, the objective strength and rigor of the challenged BiOps, and the fact that most in the region have decided to come together *under this Endangered Species Act consultation* to do what is required for the fish should not get lost in the context of a few parties' disagreements with the expert scientific judgments of NMFS and so many others in this region. NMFS has provided a rational, cogent, science-based demonstration that the agencies meet the relevant standard. Applying the law and appropriate standard of review, there is no question the agencies have complied with the ESA and NEPA, and the Court should grant Federal Defendants' cross-motion for summary judgment.

Dated March 6, 2015

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CERTIFICATE OF SERVICE

I certify that on March 6, 2015, the foregoing was electronically filed through the Court's electronic filing system, which will generate automatic service upon on all Parties enrolled to receive such notice. I also certify that the following will be manually served via overnight mail:

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