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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

**2015 DECLARATION OF
MICHAEL TEHAN,
NATIONAL MARINE
FISHERIES SERVICE, WEST
COAST REGION**

In support of Federal
Defendant's' Cross-Motion for
Summary Judgment

I, Michael Tehan, declare and state as follows:

1. I am the Assistant Regional Administrator (ARA) for the Interior Columbia Basin Area Office (ICBO) of the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), West Coast Region (WCR). I have held this position since October 1, 2013, when NMFS reorganized and merged its former Northwest and Southwest Regions into a single WCR, encompassing the states of Washington, Oregon, Idaho, and California. The ICBO was one of four new geographic area offices created in the reorganization, and it covers over 200,000 square miles east of the Cascade Mountains crest, from Bonneville Dam on the Columbia River to the headwaters of the Columbia and Snake rivers, upstream to the international border with Canada.

2. My current responsibilities include supervision of approximately 40 biologists, hydrologists, and administrative staff located in Washington, Oregon, and Idaho. In this capacity, I supervise a broad spectrum of habitat protection and restoration activities for six listed species of Pacific salmon and steelhead in the Interior Columbia basin, including the development and implementation of recovery plans pursuant to section 4(f)(1) of the Endangered Species Act (ESA), consultations conducted pursuant to section 7(a)(2) of the ESA, habitat conservation plans developed pursuant to section 10(a)(1) of the ESA, and the protection of essential fish habitat for Pacific salmon stocks managed pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. These responsibilities include the ESA section 7 consultations with the U.S. Army Corps of Engineers, Bonneville Power Administration (BPA), and the Bureau of Reclamation on the operation of the Federal Columbia River Hydropower System (FCRPS).

3. Prior to my current position, I was the Assistant Regional Administrator for the Habitat Conservation Division of NMFS's former Northwest Region for over 7 years. In this capacity, I supervised over 90 staff, mostly biologists, and was responsible for habitat conservation work in all of Oregon, Washington, and Idaho, including ESA section 7 consultation on habitat activities involving salmon and steelhead habitat restoration actions. I have been a federal government biologist for over 33 years, working for the U.S. Fish and Wildlife Service and NMFS. For the past 23 years, I have served in various management positions overseeing natural resource programs at NMFS, including those related to the management of habitat for Pacific salmonids listed for ESA protection. My educational background includes earning a B.S. degree in 1981 at the University of Washington, with a major in Forest Resource Management and a minor in Wildlife Biology studies.

4. Pacific salmon and steelhead species have been listed for ESA protection throughout all the states of the U.S. West Coast. The creation of the NMFS West Coast Region by merging the former Northwest and Southwest Regions provides the agency with greater opportunity to conduct its ESA section 7(a)(2) consultations for the many federal actions and projects affecting listed salmonids in this broad region more consistently. In addition to the four geographically defined area offices, NMFS West Coast Region also established a region-wide Protected Resources Division and Sustainable Fisheries Division to provide consistent program guidance to the four geographically defined area offices. These region-wide divisions also have responsibility for resource management in the ocean – Southern Resident Killer Whale consultations, for example, are conducted by the Protected Resources Division, and commercial fishing and hatcheries are handled by the Sustainable Fisheries Division. In this way the ESA and other natural resource programs are holistically managed for consistent agency decision-

making while maintaining local natural resource expertise and familiarity also needed for the specific factual understanding necessary for particular determinations.

5. This declaration is also based on and incorporates information provided by Patricia Dornbusch, of the ICBO, and Thomas Cooney, of NOAA's Northwest Fisheries Science Center. The purpose of this declaration is to respond to issues raised in the declaration of Mr. Anthony Nigro, and to address technical issues concerning the implementation and effects of the offsite mitigation program for tributary habitat required by the 2008 FCRPS Biological Opinion, as confirmed by the 2010 and 2014 FCRPS Supplemental Biological Opinions.

I. OVERVIEW OF TRIBUTARY HABITAT PROGRAM

6. The Reasonable and Prudent Alternative (RPA) in the National Marine Fisheries Service's (NMFS) 2008 Biological Opinion (2008 BiOp) incorporates a process by which the Action Agencies are to identify and implement tributary habitat improvement actions sufficient to meet specific habitat quality—and associated egg-to-smolt survival—improvements for 56 populations of salmon and steelhead in the Interior Columbia River Basin. NMFS analyzed those specific improvements in the aggregate analysis in the 2008 BiOp. These habitat quality and associated survival improvements are incorporated into Table 5 of RPA Action 35 in the 2008 BiOp, and are referred to as habitat quality improvement (HQI) performance standards. RPA Action 35 also addresses identification of actions; use of expert panels to evaluate change in habitat function resulting from habitat improvement actions; the use of replacement actions if necessary based on new information or actions that prove infeasible to implement; the reporting of implementation progress; and the use of information from research, monitoring, and

evaluation to inform implementation of tributary habitat improvement actions (2008 BiOp, Appendix [Reasonable and Prudent Alternative Table], at 41-46).¹

7. Based on the best available science, NMFS concluded that it is reasonably certain that by identifying the factors limiting habitat function² and implementing actions that alleviate those limiting factors, habitat function will improve, and, ultimately, the freshwater survival (or egg-to-smolt survival) of salmon and steelhead will improve as well. The technical foundation of the tributary habitat program is a method for estimating the changes in habitat function that are reasonably certain to result from implementation of habitat improvement actions and the corresponding changes in fish survival that are reasonably certain to occur as the productive capacity of habitat changes (2014 NOAA B422 at 45179-45222; 2008 BiOp at 7-43—7-46; 2014 BiOp at 229-232, 245-263).

8. A monitoring and evaluation program is in place under the 2008 BiOp and Section III of the Adaptive Management and Implementation Plan (AMIP)³ to evaluate the effects of the tributary habitat program, develop enhanced information on fish-habitat relationships, and inform program implementation (2014 BiOp at 239-240; 2014 NOAA B32). The Action Agencies are required to monitor fish populations (RPA Actions 50 and 51 and AMIP), habitat status and action effectiveness (RPA Actions 56 and 57 and AMIP), and action implementation (RPA Action 73); to develop life-cycle models (AMIP); and to improve coordination and data management (RPA Actions 70 and 71) (2008 BiOp, Appendix [Reasonable and Prudent

¹ RPA Action 34 required implementation by 2009 of specific habitat improvement actions incorporated into the 2008 BiOp. RPA Action 35 requires implementation of habitat improvement actions from 2010 through 2018.

² Limiting factors are physical, biological, or chemical features of habitat (e.g., anthropogenic barriers, high water temperature, loss of floodplains) that result in reductions in habitat function and, consequently, in fish population abundance, productivity, spatial structure, and diversity.

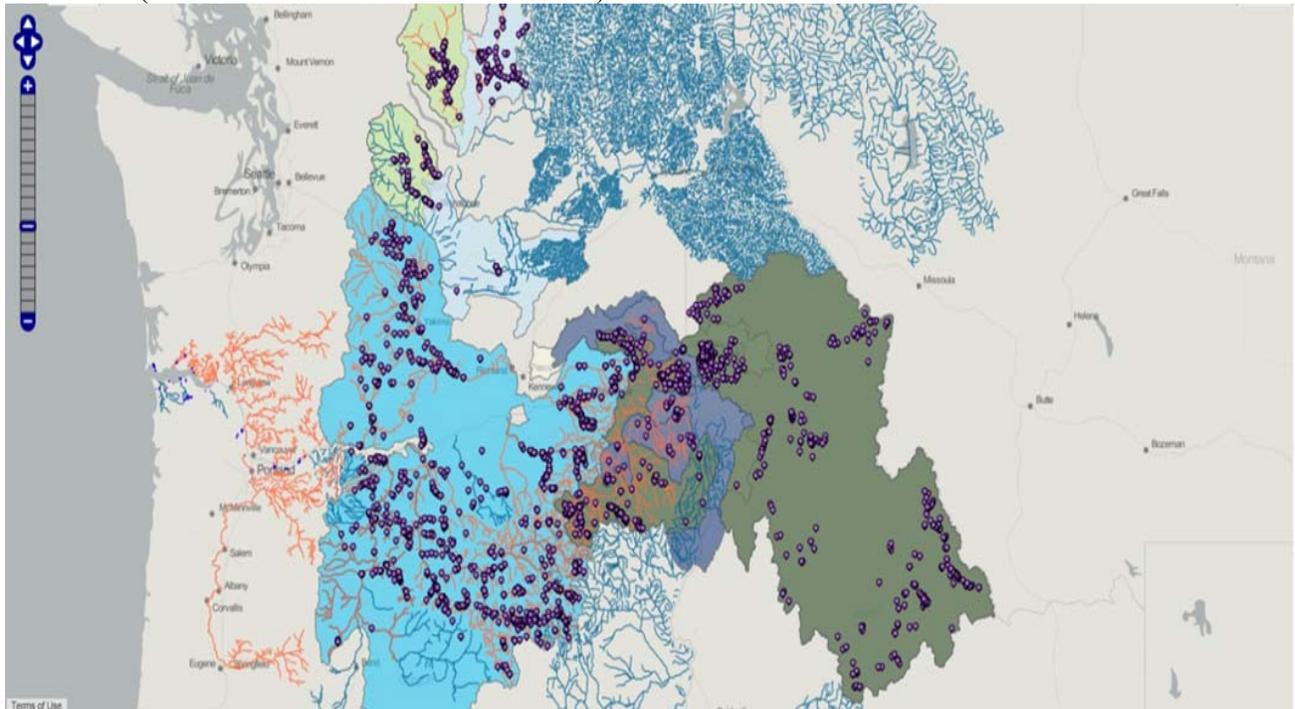
³ The AMIP was incorporated into the 2008 BiOp RPA by the 2010 Supplemental BiOp.

Alternative Table], at 69-71, 81-83, 95-98, and AMIP at 20-25). As new data and tools become available to inform estimates of how actions change habitat and fish survival, the Action Agencies will continue to incorporate the information into the program, as directed by the RPA (2008 BiOp, Appendix [Reasonable and Prudent Alternative Table], at 41-43; 2014 BiOp at 253-263).

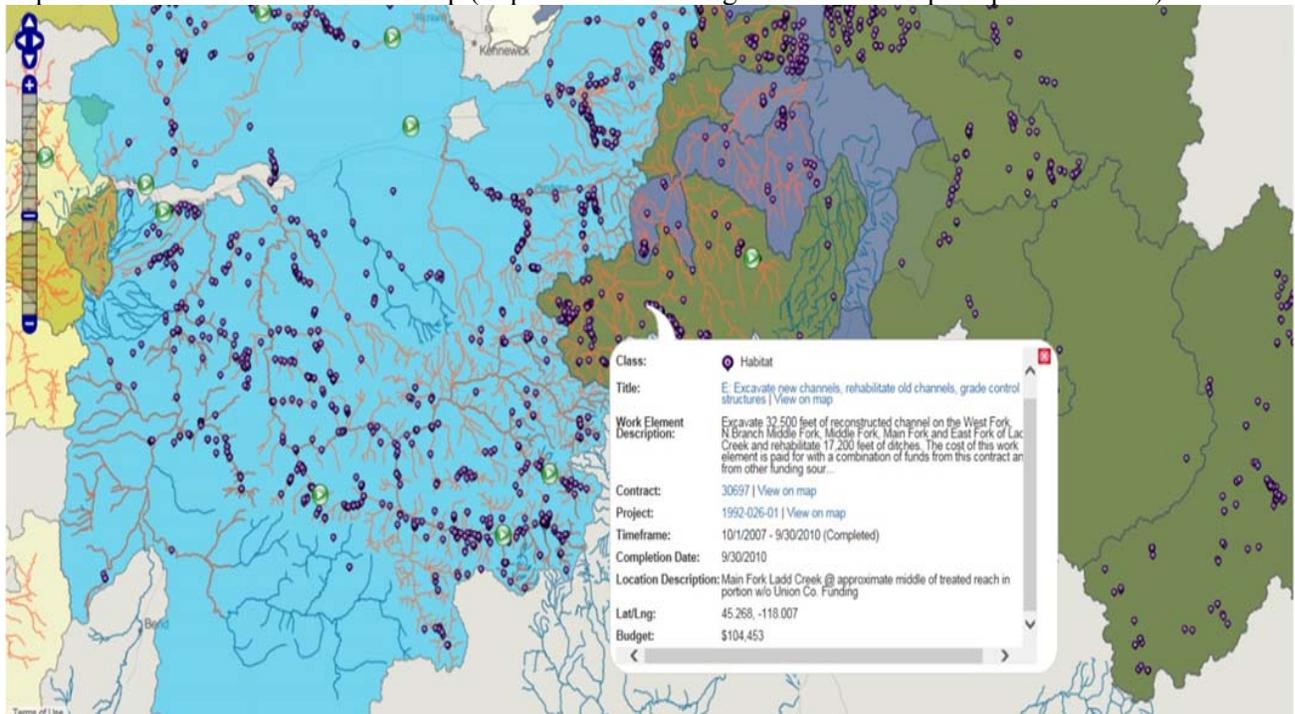
9. As of 2012, the Action Agencies had implemented tributary habitat improvement actions addressing every population included in RPA Action 35, Table 5. Map 1 shows locations of habitat improvement actions implemented under the program since 2007. Additional information on these actions (see example in Map 2), including the nature of the action, its location, budget, and links to more detailed information (including video documentation of some actions), can be found on the interactive version of the map available on the internet at (<http://www.cbfish.org/Link.mvc/To/AprMap2007To2014>).⁴

⁴ The interactive map shows locations where one or more tributary habitat improvement actions have been implemented under the FCRPS BiOp since 2007. Clicking a dot on the map will link to additional data layers for each specific action at that location. These data layers may include all work implemented at a particular site (in addition to habitat improvement actions, this may include actions related to RME, data management, hatcheries, and planning and coordination). The pull-down menu for filters on the left can be used to select filter options, including a filter to display videos that describe some actions.

Map 1. Locations of tributary habitat improvement actions implemented under the 2008 FCRPS BiOp in 2007-2014 (each dot indicates one or more actions).



Map 2. Example of information available on interactive map for tributary habitat improvement actions implemented under 2008 FCRPS BiOp (<http://www.cbfish.org/Link.mvc/To/AprMap2007To2014>).



10. Analysis of tributary habitat actions implemented through 2011 indicates that those actions are consistent with meeting or exceeding the HQI performance standard for 35 of the 56 populations in RPA Action 35, Table 5, and that for an additional 13 populations, the Action Agencies have implemented actions sufficient to make significant progress toward meeting the specified improvements (2014 BiOp at 269-280). In the 2014 Supplemental BiOp, NMFS concluded that it is reasonably certain that the Table 5 HQI performance standards will be met for all 56 populations (2014 BiOp at 316-318). Cumulatively, as of the end of 2012, the tributary habitat program had resulted in 177,227 acre feet of water protected for instream use, 206 miles of stream complexity improved, 6,812 acres of riparian habitat improved, 247 fish screens installed or improved, and 2,053 miles of habitat made accessible (2014 NOAA B47 at 3312-3323).

11. The tributary habitat program is large, complex, and beneficial. In addition to the accomplishments noted above, it has enhanced collaboration and knowledge at both technical and policy levels throughout the Interior Columbia River Basin, and its implementation is making a major contribution not only to the RPA but to the long-term tributary habitat recovery needs of salmon and steelhead. The methods used in the program to predict, monitor, and evaluate the changes in habitat function and fish survival as a result of implementing habitat improvement actions represent the best available science. Further, the Action Agencies' record of implementation, combined with their strategies for implementation through 2018, give NMFS reasonable certainty that the required survival improvements will be achieved.

II. BACKGROUND: TRIBUTARY HABITAT PROGRAM REPRESENTS BEST AVAILABLE SCIENCE

12. The method used in the 2008 BiOp to estimate habitat improvements and survival benefits represents the best science available that can be consistently applied throughout the

Columbia Basin to assess the effects of actions occurring across the diverse watersheds of the basin and affecting a variety of listed salmonid ESUs/DPSs. Key steps of the method, provided here for context, are to: (1) identify, weight, and evaluate the factors that limit the quality and function of tributary habitat for each salmon or steelhead population in question (a step carried out by expert panels, using available information and expert opinion); (2) identify actions that would reduce the magnitude of those limiting factors and thereby improve the quality and function of the habitat (a step carried out by the Action Agencies working with their local implementing partners); (3) estimate, using available data and expert opinion, the change in function of specific limiting factors as a result of implementing those actions (again, expert panels make these estimates, using available data and expert opinion); and (4) estimate the change in overall habitat function (i.e., considering the combined effects of multiple limiting factors) that would occur at the population level as a result of the changes in limiting factor function and the corresponding change in egg-to-smolt survival that would result from that change in habitat function (referred to in the 2008 BiOp as habitat quality improvements, or HQI). This last step is carried out by the Action Agencies, using a method developed by the Collaboration Habitat Workgroup (see paragraph 13, below). The method is described comprehensively and in detail in several documents, including the Action Agencies' Comprehensive Analysis, Appendix C (2014 NOAA B422 at 45179-45222); NMFS's 2008 BiOp, Section 7.2.2 (2008 BiOp at 7-43—7-46); and the 2014 Supplemental BiOp, Sections 3.1.1.6 and 3.1.1.7 (2014 BiOp at 230-232, 245-252; also see 2014 NOAA B476 at 4085-4093 and 4112-4147 and 2014 NOAA B42).

13. The method was developed collaboratively by regional experts on the Collaboration Habitat Workgroup (CHW), which was co-chaired by Dr. Kim Kratz, of NMFS (Kratz

Declaration, ECF 1564, paragraph 5). The CHW was convened in 2006 at the request of the Policy Work Group formed as part of the court-ordered remand of NMFS's 2004 FCRPS BiOp. Members of the CHW represented the states, tribes and federal agencies involved in the collaboration process and were selected for their technical expertise. The CHW documented the alternative methods they considered and their rationale for choosing the methods they ultimately recommended (2014 NOAA B422 at 45179-45222; 2014 BiOp at 230-232).

14. In the 2008 BiOp, the 2010 Supplemental BiOp, and the 2014 Supplemental BiOp, NMFS reviewed the method and available information. NMFS determined that the approach the Action Agencies use to estimate benefits of habitat improvement actions and the corresponding survival improvements represents the best science available that can be consistently applied throughout the Columbia Basin to assess the effects of actions occurring across the diverse watersheds of the basin and affecting a variety of listed salmonid ESUs/DPSs (2008 BiOp at 7-43—7-46; 2010 BiOp Section 2 at 81-84; 2014 BiOp at 229-265). We have provided additional background on that determination in other documents (Kratz Declaration, ECF 1564, paragraphs 5-12; Kratz Reply Declaration, ECF 1650, paragraphs 4-22; 2008 NOAA C1155 at 20-26; 2010 NOAA CC200 at 11-15; 2014 RTC at 20-27).

15. As directed by the Court in its remand order, our review in the 2014 Supplemental BiOp was extensive (see 2014 BiOp at 229-265) and based on multiple lines of evidence, including a comprehensive review of the literature (411 published studies) on the physical and biological effectiveness of restoration actions in the Columbia River Basin, as well as in other parts of the Northwest or the world (2014 NOAA B355); various correlation analyses (e.g., 2014 NOAA B41, B53, B328, B329); and preliminary results from the research, monitoring, and evaluation (RME) program implemented under the 2008 BiOp RPA (summarized in 2014 NOAA B41).

16. Based on that review, we concluded that there is a strong basis for our conclusion that tributary habitat improvement actions such as those carried out under the RPA are reasonably certain to improve fish population status to meet the RPA (2014 BiOp at 242, 264-265). We also reviewed the feasibility of reaching the survival improvements identified in the 2008 BiOp RPA Action 35, Table 5 (2014 BiOp at 242-244); the refinements that Action Agencies have made in implementing the method to ensure the use of best available information and additional refinements anticipated through 2018 (2014 BiOp at 252-263); the use of expert opinion in conservation biology (2014 BiOp at 246); and the qualifications of the FCRPS expert panel members (2014 BiOp at 246). We found that all of this information supports the scientific basis for the tributary habitat approach. In addition, we determined that the habitat improvement actions identified for implementation in the Action Agencies' 2014-2018 FCRPS Implementation Plan were identified with the same or greater level of detail as actions identified for implementation from 2007-2013 in the Action Agencies' FCRPS Biological Assessment (Appendix B, Section B.2.2-2, Tables 1-5a [2014 NOAA B421 at 44076-44143]) and their 2010-2013 FCRPS BiOp Implementation Plan (Appendix A [2014 NOAA B45 at 3065-3081]) (see 2014 BiOp at 317).

17. In his declaration, Mr. Anthony Nigro raises issues regarding the methods used for estimating the benefits of habitat improvement actions, the implementation of the tributary habitat program, and the ability to demonstrate the results of the program. Below I respond to those issues and, as necessary for a full understanding, provide additional technical background on the tributary habitat program.

III. METHODS: CONSIDERATION OF ONGOING HABITAT DEGRADATION AND CLIMATE CHANGE

18. Mr. Nigro states, in paragraph 48 of his declaration, that NMFS has not explained how the predicted HQI values might be affected by changes in climate. A related issue that has been raised in the past is how the expert panels consider the effects of ongoing actions or events that could degrade habitat. This issue is relevant as context for the issue Mr. Nigro raises and as background on the expert panel process, and I discuss it, along with Mr. Nigro's issue regarding climate change, below.

19. As we have noted previously (Kratz Declaration, ECF 1564, paragraph 6; 2014 RTC at 26-27), the overarching strategy under which RPA Action 35 is nested is to "protect and improve" habitat (2008 BiOp, Appendix [Reasonable and Prudent Alternative Table], at 40-41). The process developed by the CHW for estimating habitat improvement potential explicitly incorporated the protection objective, and expert panels consider the impacts of ongoing land-use activities or natural events within a watershed. The CHW's guidance to local biologists ("Guidance from the Habitat Technical Subgroup of the BiOp Remand Collaboration for Providing Columbia Basin Tributary Habitat Action Information"⁵) was to estimate the degree of change for each individual attribute that can be expected from the entire set of actions intended to affect the attribute. Estimates are to take the following variables into consideration:

- any existing estimates from recovery or subbasin plans or other sources;
- context and location of actions;
- extent of the action and resulting treatment of limiting factors;
- effectiveness of methods used in implementing the actions;

⁵ See Kratz Declaration (ECF 1564, footnote 1) and 2008 NOAA C.129, Attachment, under the heading "Estimated Change in Limiting Factor from Existing Condition to Optimal Functioning Condition."

- interdependence of limiting factors treated by the actions with other factors and extent to which these other factors are also treated;
- degree of certainty that actions will have the expected effect on limiting factors; and
- *risk of effects from other threats that would confound or reduce the positive effects of the actions.* [emphasis added]

20. In addition, expert panels reevaluate limiting factors each time they are convened. They may add limiting factors or adjust the weighting of limiting factors (the weighting reflects a limiting factor's relative influence on overall habitat function) to reflect new information. They also evaluate the current function of the limiting factor and the potential to improve it.⁶ Limiting factors with low current functions (and, in some cases, limiting factors with a low potential for improvement) would reflect the influence of habitat limitations such as development in a floodplain, grazing, logging, or other activities, including those occurring upstream or downstream but with the potential to limit benefits of an action.

21. For instance, in the summer of 2014, there were major fires in the Methow, Entiat, and Wenatchee subbasins in the Upper Columbia. When the Action Agencies convene expert panels in 2016, the expert panels will consider how those fires affected the function of limiting factors such as sediment delivery and riparian area function. Consideration of the effects of the fires in those areas will also influence the identification and prioritization of habitat improvement actions.

22. Consideration of the effects of the fires has already begun. In September 2014, the Action Agencies participated in a meeting convened by the Upper Columbia Salmon Recovery Board at which a panel of scientists discussed "Fish and Fires in the Upper Columbia: Recent

⁶ The current function of a limiting factor is referred to as its "low bookend" and the potential function as its "high bookend" in expert panel parlance and documentation (see 2014 BiOp at 247-249; 2014 NOAA B47 at 4112-4117; and 2014 NOAA B389).

Fire Impacts in the Methow, Entiat, and Wenatchee Subbasins.” Following that meeting, a Fish and Fire Effects Subgroup of the Upper Columbia Regional Technical Team prepared a document titled “Prioritization of Areas and Potential Actions for Burned Areas within the Upper Columbia as a Result of the 2014 Fires.”⁷ The subgroup evaluated available information to develop a prioritized list of burned areas in need of short-term actions that could mitigate the effects of the fire on important salmonid habitat or help to restore lost habitat for salmonids, including actions in sub-watersheds not currently occupied by salmon or steelhead but that may still affect important habitat downstream of these areas (e.g., by contributing large amounts of sediment into downstream spawning or rearing habitats). The expert panel will consider this information in evaluating limiting factors and action benefits in 2016; the Action Agencies and local implementing partners will also consider the information in prioritizing actions for implementation.

23. Expert panels were also instructed to provide comments and documentation of the basis for their determinations, including when such factors caused a substantially lower estimate of habitat potential or action benefits (Kratz Declaration, ECF 1564, paragraph 6). Notes from the 2012 expert panels indicate such factors were taken into account.⁸

⁷ The Upper Columbia Salmon Recovery Board is one of the Action Agencies’ local implementing partners. The Regional Technical Team aids in developing and assessing the technical merits of salmon recovery actions and RME in the Upper Columbia region. The report mentioned is available online. <http://www.ucsr.org/news/Post/Report-of-Prioritization-of-Areas-and-Potential-Actions-for-Burned-Areas-within-the-Upper-Columbia-as-a-Result-of-the-2014-Fires/>.

⁸ See, e.g., 2014 NOAA B389 at 38762, line 2 (“Due to past timber harvest); 38763, line 6 (“The upper 30 miles of the Lochsa River mainstem is very simplified. This is due in part to Hwy 12 preventing wood recruitment [as well as headwater streams (Crooked and Brushy Forks) being heavily logged in the past]. Therefore, we are beginning to investigate the installation of large wood into the mainstem Lochsa in this section.”); 38787, line 2 (“Loss of riparian veg from grazing, dredge mining, and urbanization. Ocular observations... There are many miles left along the mainstem American River, Big Elk and Little Elk Creeks to be planted. Majority of

24. Regarding the effects of climate change specifically, Mr. Nigro, in paragraph 48, describes expected climate change impacts that NMFS also described and accounted for in the 2008 BiOp and in the 2010 and 2014 Supplemental BiOps (see, e.g., 2014 BiOp at 152-182 and Appendix D), and then, in paragraphs 48 and 49, states that NMFS did not explain how it took climate change into account when estimating predicted improvements from habitat actions.

25. As stated in the 2008 BiOp (2008 BiOp at 7-13 – 7-14), NMFS included quantitative estimates of the biological effects of future ocean conditions on the productivity of listed species, using one of three climate scenarios developed by the Interior Columbia Technical Recovery Team (ICTRT) (2014 NOAA B176 at 14164). The “recent” ocean climate effects scenario applied in the 2008 BiOp assumes that most future years will be dominated by El Niño events and warm Pacific Decadal Oscillation conditions. This assumption added 38% to the survival improvements required to meet indicator metric goals for Snake River spring/summer Chinook salmon, compared to an assumption of no climate change (i.e., that future ocean conditions will resemble average ocean conditions from the past 50 years) (2008 BiOp at 7-14 and 2014 NOAA B176 at 014165). Corresponding estimates for other species include an additional 44% for Upper Columbia spring Chinook salmon and an additional 11-19% needed survival change for listed Interior Columbia Basin steelhead species. In other words, NMFS quantitatively added

these areas are on private land and future projects in these areas will be explored.”); 39054, line 4 (“May be a bigger issue in the future because of location of Chief Joseph Hatchery acclimation ponds”); 39227, line 5 (“Fine sediments primarily from road system. No USFS grazing allotments in UGS18. Increase to 2033 High Bookend reflects potential from recently approved USFS Travel Management”); 39229, line 5 (“Significant private land grazing”); 39329, line 1 (“Anticipate improved floodplain condition as a function of LWD recruitment and retention. However, because extensive dredge spoils overlie the floodplain the benefit of large wood needs to be rightfully considered relative to other treatments [e.g., how much of the floodplain will become activated as a function of large wood recruitment]. Within context of conditions in the Yankee Fork floodplain condition will be restored by virtue of other related actions [e.g., road improvements.”]), et al.

11% to 44% to the survival changes needed from RPA actions, including tributary habitat improvements, to account for future ocean conditions, reflecting potential changed climate conditions. In the 2014 Supplemental BiOp, NMFS compared approximately 10 years of new data on ocean conditions with the conditions represented by the 2008 BiOp's "recent" ocean climate assumption (2014 BiOp at 152-159). The new observations were either within the range of the ICTRT's "recent" climate scenario assumptions or were closer to average historical conditions (i.e., were better for salmon than the conditions assumed in the 2008 BiOp) (2014 BiOp at 179-180).

26. We were not able to estimate quantitatively the effects of climate change on survival and productivity during freshwater life stages due to lack of available information relevant to the time period under consideration in the BiOp.⁹ Instead, we qualitatively considered the potential impacts of climate change in the Columbia River Basin (2014 NOAA B282 at 27631-27635), including consideration of the factors described in Mr. Nigro's declaration, paragraph 48.

27. The 2008 BiOp (at 7-14, 7-32 to 7-35, and 8-22 to 8-23) also required that sufficient actions be adopted to reduce impacts of climate change on anadromous salmonids by implementing proactive actions identified by the Independent Scientific Advisory Board (ISAB)

⁹ The sole quantitative estimate available in 2008 (2014 NOAA B88) indicated a decline in Salmon River spring/summer Chinook parr-to-smolt survival under 2040 climate conditions (2008 BiOp at 7-14). NMFS did not apply this quantitative estimate to the 2008 BiOp's quantitative analysis because of uncertainties regarding: (1) interpretation of the base condition in the analysis relative to the 2008 BiOp's Base Period; (2) relevance of the instantaneous implementation of assumptions regarding climate in 2040; and (3) Crozier et al.'s discussion that density-dependent processes compensated in part for the climate effects. This study was updated in 2013 and described in the 2014 Supplemental BiOp (2014 NOAA B85; 2014 BiOp at 176-177). The new study identified differential responses of populations to climate change, in some cases due to offsetting effects of increased summer stream temperatures and increased fall precipitation. Abundance under climate change declined for five of nine populations studied and stayed about the same or increased for the other four. The impact of the population declines on extinction risk within a time period of 25 years was minor for all but one population.

(2014 NOAA B185). We reviewed actions implemented to date and determined that a sufficient number of actions consistent with these ISAB recommendations had been implemented (2014 BiOp at 435-442). This review took into account new scientific literature since 2008 that describes how some habitat restoration actions can reduce the impacts of climate change while others are less likely to have that effect.

28. For example, Beechie et al. 2012 (2014 NOAA B19; final publication in 2013) show that placing structures in streams may improve habitat function under current conditions but that, except in limited circumstances, such actions are unlikely to ameliorate effects of climate change. On the other hand, they show that reestablishing lateral connectivity between floodplains and stream channels or reestablishing vegetation to restore riparian processes are beneficial under current conditions and are also likely to ameliorate some effects of climate change. In other words, some habitat improvement actions (such as reestablishing floodplain connectivity and restoring riparian areas) contribute to meeting the 2008 BiOp HQI performance standards and also have an additional benefit: they contribute to ameliorating impacts of climate change (see 2014 RTC at 18), although the climate change benefits are not quantified. NMFS continues to conclude that sufficient actions consistent with the ISAB's 2007 recommendations for responses to climate change (2014 NOAA B19) have been included in the RPA and are being implemented by the Action Agencies as planned (2014 BiOp at 435-442; 2014 RTC at 15-17).

29. Further, in estimating habitat quality and corresponding survival improvements as a result of habitat improvement actions, the Action Agencies and NMFS, in fact, use a conservative assumption, and base estimates of habitat function and survival change only on the expert panels' estimates of habitat benefits that will accrue in the near term (i.e., through 2018). Expert panels also estimate benefits that will accrue in the longer term (i.e., through 2033).

These longer-term estimates indicate that many habitat actions will result in additional habitat quality and survival improvements beyond 2018, thus contributing additional resilience for future effects of climate change.

30. The best available science would not allow the expert panels to quantify how climate change will affect limiting factor function; nevertheless this is an important qualitative consideration for their habitat evaluations. The expert panels' assessment looks to the actual limiting factors that have the more immediate effect on fish survival. This consideration incorporates potential effects of climate change qualitatively. To ensure that expert panels had the best available information, the Action Agencies made NMFS's review of recent climate change science available to the expert panels through an on-line library of technical resources supporting their deliberations, and the Action Agencies arranged for NOAA's Northwest Fisheries Science Center staff to update expert panels on climate change in person (2014 BiOp at 255 and 436; BR00090746; BR00091522). Thus the tributary habitat expert panels are knowledgeable about expected climate change impacts and considered climate information within the context of limiting factors and the degree of uncertainty or severity of effects resulting from a shift in climate.

31. Finally, the Action Agencies and their local implementing partners consider available information on climate change in identifying, evaluating, and prioritizing actions being considered for funding through the FCRPS tributary habitat program. For example, the Regional Technical Team of the Upper Columbia Salmon Recovery Board, one of the Action Agencies' local implementing partners, evaluates actions being considered for implementation in the Upper Columbia. In 2014, that team incorporated into its evaluation criteria the consideration of the extent to which an action would help ameliorate effects of climate change, using

recommendations in Beechie et al. (2013) (2014 NOAA B19), among others, as the basis for their evaluation. This demonstrates that the FCRPS tributary habitat program considers the effects of climate change in selecting and prioritizing actions for implementation.

32. In summary: (1) our ocean climate change assumptions resulted in quantitative increases in the survival improvements needed from improved tributary habitat and other beneficial actions; (2) the quantitative estimates of the survival changes expected from tributary habitat improvements are conservative because they are based on benefits expected to accrue only in the near term (i.e., through 2018), even though many benefits will continue to accrue in the longer term; (3) we determined that a sufficient number of tributary habitat improvement actions had the additional effect of ameliorating climate change effects in the freshwater environment, consistent with the ISAB's 2007 recommendations (2014 NOAA B19); and (4) climate change was fully considered throughout the process.

IV. ACTIONS ARE REASONABLY CERTAIN TO BE IMPLEMENTED

33. Mr. Nigro, in his declaration, claims that “habitat actions are not being implemented as planned...[and] are either behind schedule or have been replaced by another action without explanation” (paragraph 47 and Appendix B). In support of Mr. Nigro's assertion, the Oregon Department of Fish & Wildlife (ODFW) offers an analysis of unclear purpose that does not reference NMFS's 2014 BiOp (see Appendix B of Nigro declaration).

A. OVERALL PROGRESS IN IMPLEMENTATION

34. NMFS's evaluation of implementation progress to date and planned through 2018 is more thorough, more nuanced, and more relevant than Appendix B in Mr. Nigro's declaration, and our evaluation and line of reasoning are clearly laid out in the 2014 BiOp. For populations for which best available science indicated that actions implemented through 2011 were sufficient

to achieve $\geq 33\%$ of the 2008 BiOp HQI performance standard,¹⁰ and where the same best available science indicated that continued implementation of actions through 2018 would meet the HQI performance standard, we determined that meeting those performance standards was reasonably certain (2014 BiOp at 276-277). This conclusion was based on the reasoning that (1) implementing actions sufficient to achieve $\geq 33\%$ of the BiOp HQI performance standard demonstrated significant implementation progress by the Action Agencies, and (2) best available science indicated that the additional actions identified for implementation through 2018 would achieve the HQI performance standard (2014 BiOp at 276-277).

35. We did have concerns with the Action Agencies' ability to implement sufficient actions to achieve the HQI performance standards in ten populations where implementation through 2011 was consistent with achieving $\leq 33\%$ of the performance standard and/or for which supplemental actions not yet reviewed by an expert panel were identified. Therefore, we gave those populations additional scrutiny and documented the strategies and rationale for our conclusions for each of those populations in the 2014 BiOp (see the discussion of each of these 10 populations in the 2014 BiOp at 286-316). Our determinations were based on review of the documentation of the 2012 expert panels (2014 NOAA B389; 2014 BiOp at 282), as well as discussion with Action Agency staff regarding their strategies for specific populations, and other considerations noted in the 2014 BiOp (2014 BiOp at 283). In addition, we considered observations by NOAA's Northwest Fisheries Science Center (2014 NOAA B357) and regional office staff who attended expert panel meetings as observers (2014 BiOp at 282). In each case,

¹⁰ Note that, contrary to statements in Mr. Nigro's declaration, nowhere does NMFS say the actual survival improvements have yet occurred. We say that actions have been implemented that are consistent with achieving those survival benefits, once the full habitat changes have occurred and once the population has had time to respond. See further discussion of this issue below, at paragraph 69.

we concluded that it is reasonably certain that the HQI performance standard and associated survival improvement for those populations will be achieved using the strategies described.

36. For example, see the discussion of the Yankee Fork spring Chinook salmon population below (in paragraphs 48-50) and in the 2014 BiOp (at 295-297). We determined that the Action Agencies had (1) completed extensive environmental compliance and assessment work in the initial years of the 2008 BiOp (the need for which had been anticipated due to the extremely degraded nature of the watershed and the existence of cultural resources that required a preservation plan); (2) developed an overarching strategic plan for restoration; (3) begun to implement significant actions (some of which were completed in 2012 but not in time for the expert panel to evaluate them); (4) identified actions for implementation through 2018 that were targeted at the highest priority limiting factors in priority reaches, consistent with accepted watershed restoration principles, and projected, based on the best available science, to achieve the HQI performance standard; and (5) were closely engaged with local implementing partners to move forward with implementation. Based on these factors, we determined that it is reasonably certain that the HQI performance standard for this population will be achieved.

37. As a result of these detailed evaluations, NMFS has a high degree of confidence that achieving the HQI performance standards for all populations in RPA Action 35 Table 5 is reasonably certain.

B. CHANGES IN ACTIONS AND ADDITION OF NEW OR SUBSTITUTE ACTIONS

38. Appendix B of Mr. Nigro's declaration also devotes inordinate time to evaluating the extent to which actions have been implemented as planned, based on habitat metrics reported at the population scale in the Action Agencies' Comprehensive Evaluation (2014 NOAA B47 at

3961-3981).¹¹ First, in a program of this magnitude and complexity, it is reasonable to expect (and was contemplated by NMFS at the outset in 2008) that some actions will change between the time they are first evaluated by an expert panel (or proposed, in the case of the supplemental actions) and the time they are implemented. This could occur for many reasons, including new information regarding benefits of a planned action, opportunities to reprioritize implementation of actions with greater benefits, new information on best design practices, weather conditions, permitting delays, landowner concerns, and the logistics of coordinating construction with contractors. It is also reasonable that some actions may not be implemented, and that new and/or substitute actions may be identified, for the same reasons, and because new and more beneficial action opportunities may be realized in the Action Agencies' ongoing work with local partners to identify the most beneficial and feasible actions.

39. In fact, some actions have changed to be more extensive in scale or scope than initially expected,¹² some to be less extensive, some planned actions have not been implemented, and

¹¹ The evaluation in Appendix B of Mr. Nigro's declaration is overly focused on the metrics reported in the Action Agencies' Comprehensive Evaluation and Implementation Plan rather than on the metrics reported in the spreadsheets and notes documenting the expert panel process (2014 NOAA B389). The expert panel spreadsheets are directly connected to the projected HQI values and corresponding survival improvements for each population through the process described in the 2014 Supplemental BiOp (2014 BiOp at 247-272). Expert panel spreadsheets (2014 NOAA B389) also track any changes in limiting factors or weighting of limiting factors and in assessment units and weighting or assessment units. Such changes may occur to respond to new information or thinking by the expert panels. (For more discussion of the expert panels' role and the calculation of HQI, see the multiple references cited in paragraph 12, above.)

¹²See, e.g., 2014 NOAA B389 at 39585, lines 1 and 2 ("Planned 2 miles completed 5 mi," "7 screens planned 13 completed"); 39586, lines 3 and 5 ("8 planned 10 completed," "About 3 times more completed than planned"); 39601, line 7 ("More work completed than anticipated lower little creek and Ladd remain with some passage barriers"); 39603, line 17 ("Multiple projects completed 13.2 mi of improved complexity 2 miles was anticipated so more work done than anticipated"); and 36609, line 1 ("More completed than anticipated"), et al.

some new actions have been identified, implemented, and then evaluated by expert panels.¹³

This adaptive process not only allows the Action Agencies to respond to external factors affecting implementation but also allows them to refine the selection, scope, focus, and sequencing of implementation when opportunities arise to achieve greater benefits. The example described above, in paragraphs 19-22, of how the Action Agencies and their local partners are responding to the 2014 fires in the Upper Columbia illustrates why it is appropriate for the program to be adaptive in this manner. Other examples include:

- In Jim Brown Creek, an action to conduct riparian plantings to benefit Lolo Creek steelhead, which had been evaluated by the expert panel, was delayed when the opportunity arose to reprioritize actions and carry out culvert replacements with more immediate habitat benefits (2014 NOAA B389 at 38702, lines 4-7).
- In Newsome Creek, funding for riparian planting and road decommissioning to benefit the South Fork Clearwater population was rescheduled so that funds could be reallocated to complete additional stream restoration with more immediate benefits, consistent with achieving the 2008 BiOp RPA Action 35 Table 5 HQI performance standards (2014 NOAA B389 at 38710, lines 1-3).

40. Such changes are not made at random but in a manner consistent with comprehensive planning documents such as recovery plans, subbasin plans, and evolving science and information that informs priorities, and in close consultation with local implementing partners. Thus these changes are carried out within overarching strategic frameworks that have been developed to achieve long-term recovery and subbasin planning goals. (For additional discussion of how the Action Agencies work closely with local implementing partners to ensure strategic implementation of actions, see the Action Agencies' 2013 Comprehensive Evaluation, Appendix D [2014 NOAA B47 at 4094-4111].)

¹³See, e.g., 2014 NOAA B389 at 38687, line 7 (“new and completed”); 38688, line 5 (“new and completed”); 38690, line 1 (“new and completed”); 38703, line 3 (“new and completed”); 38800, lines 3 and 4 (“new and completed”), et al.

41. Moreover, NMFS anticipated such adjustments and incorporated a method for dealing with them into the RPA. The Action Agencies' adaptive approach is consistent with the RPA (2008 BiOp, Appendix [Reasonable and Prudent Alternative Table], at 42) and is documented in reports such as the 2013 Comprehensive Evaluation (2014 NOAA B47, Appendices A [at 4036-4071] and D [at 4084-4154]) and the 2014 BiOp (at 285). Changes to specific actions are also documented in the spreadsheets and notes documenting the expert panel process (2014 NOAA B389).¹⁴

42. Mr. Nigro's declaration makes a specific claim that a project in Catherine Creek has "decreased in areal extent, size and configuration, and/or treatment actions" (Appendix B, pp. 62-63: "CC-44 project decreased by one side channel and one alcove from initial [30%] to final design drawings"). In fact, in a meeting of the Catherine Creek River Mile 44 (CC44) Project Change Control Board,¹⁵ ODFW staff participated in and agreed to this change, based on considerations including the fact that the channel would not meet project objectives without additional project modifications and that there "may be future opportunities for side channel creation further upstream and [that] there will be considerable side channel habitat developed in future phases" of the overall project. (Exhibit 1. Catherine Creek – River Mile 44 Phase II Habitat Improvement Project Change Request Form and email from Colleen E. Fagan [ODFW]

¹⁴ For additional discussion of methods used by the Expert Panels and the calculation of HQI, see the 2014 Supplemental BiOp, Sections 3.1.1.6 and 3.1.1.7 (2014 BiOp at 245-252); the Action Agencies' 2013 Comprehensive Evaluation (2014 NOAA B47 at 4112-4147); 2014 NOAA B42; and the Action Agencies' Comprehensive Analysis, Appendix C (2014 NOAA B422 at 45179-45222).

¹⁵ The CC44 Change Control Board was formed pursuant to the CC44 Project Management Plan to formalize how changes to the project are made. The board consists of representatives from Reclamation, BPA, the Confederated Tribes of the Umatilla Indian Reservation, Union Soil and Water Conservation District, and ODFW.

to Allen Childs et al. Jan. 21, 2014, 9:30AM [“ODFW supports the decision to remove Side Channel 1”].)

43. Further, expert panels evaluate actions both before and after they are implemented (in processes referred to as the “look forward” and the “look back”) (2014 BiOp at 248-249). Thus if the scale or scope of an action changes between the time it is first evaluated by an expert panel and the time it is implemented, the benefits projected from that action would be adjusted accordingly. For example, if an action initially was planned to restore five acres of floodplain, and as eventually implemented, only three acres were restored, the expert panel would adjust the projected benefits of that action downward in the “look back” process. The change in projected benefits would then be carried through in the Action Agencies’ calculations of HQI. The spreadsheets of actions and expert panel determinations document such changes (see 2014 NOAA B389).

44. Because the Action Agencies are responsible for achieving the performance standards in RPA Action 35 Table 5, rather than for implementing any particular set of actions (Kratz Declaration, ECF 1564, paragraph 13), if some actions are modified in a way that produces fewer benefits, or are not implemented at all, the Action Agencies need to find replacement actions sufficient to achieve the HQI performance standard. Sufficient actions exist in recovery plans, subbasin plans, etc., that the Action Agencies will be able to find replacement actions (2014 BiOp at 242; Kratz Declaration, ECF 1564, paragraphs 14-24). Thus, despite modification of some actions and replacement of some actions as implementation proceeds, NMFS is confident that sufficient actions can be identified and implemented to make attaining the HQI performance standards reasonably certain, as further explained below.

C. CAPACITY TO ACCELERATE IMPLEMENTATION FOR SOME POPULATIONS

45. Mr. Nigro also raises a concern (appendix B, section 4, paragraph 1) that “the expert panels tend to overestimate the number of actions and associated treatment metrics that will be completed.” It is unclear what Mr. Nigro means here, since the Action Agencies, not the expert panels, estimate the number of actions and associated treatment metrics that will be completed.¹⁶ To the extent he is arguing that the Action Agencies tend to overestimate the extent of actions that will be completed in a given period, the statement is overly general and ignores relevant information presented in the 2014 BiOp and by the Action Agencies. As noted, implementation was slower to gain momentum in some watersheds than in others, due to factors including the need for additional assessment to identify the most beneficial actions and the need to build local relationships and gain support among local implementing partners and landowners. In such cases, the Action Agencies’ early efforts were focused on those necessary precursors to achieving the needed survival improvements, and they took steps, tailored to each circumstance, to lay the groundwork to accelerate implementation in later years (2014 BiOp at 279-280, 281, 284-285).¹⁷

46. Among the results of these efforts are additional tributary and reach assessments that help to identify high value actions; intensive work with watershed groups, action sponsors, and Fish Accord partners to refine and implement high priority habitat improvement actions to meet

¹⁶ The Action Agencies identify actions and the extent of treatment in terms of number of acres restored, riparian miles restored, amount of flow restored, etc. Expert panels estimate how implementation of these actions will change the function of limiting factors, and this change in habitat function is then converted, by the Action Agencies (using the method developed by the CHW), into an overall change in habitat quality and associated survival improvement (2014 BiOp at 245-252; also see 2014 NMFS B47 at 4112-4118).

¹⁷ In some cases, these efforts had led to actions that were implemented in 2012 but not included in the 2012 expert panels’ evaluations because they were still underway or completed metrics were not yet available (e.g., see 2014 BiOp at 296).

or exceed RPA HQI performance standards; enhanced Action Agency organizational capacity; and work by the Action Agencies to integrate the FCRPS tributary habitat program with other regional processes and to build stakeholder support for BiOp priorities (2014 BiOp at 253-256, 270; 2014 NOAA B47 at 3312, 3516-3546, 4036-4071). By laying essential groundwork, these efforts will help to accelerate implementation in the remaining years of the 2008 BiOp implementation period.

47. Further, once again, Mr. Nigro and ODFW ignore the fact that NMFS scrutinized the Action Agencies' strategies for the populations where they have made less progress to date. The basis for our conclusions that achieving the survival improvements for those populations was reasonably certain is documented in the 2014 BiOp (2014 BiOp at 286-316). These analyses are more relevant than ODFW's broad statements because they consider circumstances specific to each population.

48. Mr. Nigro also claims, in paragraph 47, that "in some basins, no habitat actions have been completed, even though there was an expectation that something would be done by 2011." In fact, there was only one population – the Yankee Fork spring Chinook salmon population – for which no actions had yet been implemented through 2011 (2014 BiOp at 270). And, once again, as clearly documented (2014 BiOp at 295-297), the Action Agencies had anticipated a potential for delay in implementation for this population¹⁸ due to the complicated nature of planning for habitat improvement in the Yankee Fork, including drastic modification of stream channel,¹⁹ and the need for extensive assessment of the restoration approach and complex

¹⁸ A 2006 expert panel noted that no on-the-ground action should be anticipated for five years (2008 NOAA S.31).

¹⁹ Approximately six miles of the Yankee Fork have been drastically modified by historical dredging operations, which altered the course of the stream and caused extensive damage to

environmental and cultural resource compliance issues.²⁰ With that groundwork laid, the Action Agencies, working with local partners, began to implement actions. Several actions to restore side channel habitat where it had been destroyed by historical dredging were completed in 2012 and 2013 but have not yet been evaluated by an expert panel, since the 2012 expert panels evaluated actions completed through 2011.

49. Many additional actions have been identified for implementation to continue to address Yankee Fork limiting factors. The Yankee Fork Fluvial Habitat Rehabilitation Plan completed by Reclamation in 2013 (2014 NOAA B231) outlines the overarching restoration strategy. The “upper bookends” that the expert panel assigned to limiting factors related to juvenile rearing habitat potential reflect the potential for improvement (2014 NOAA B389 at 39328-39330). The 2012 expert panel reviewed an extensive list of actions planned for implementation through 2018 (2014 NOAA B389 at 39295-39312). These actions, as well as the supplemental actions identified for the Yankee Fork (2014 NOAA B48 at 3348), address priority limiting factors in priority reaches identified using best available information. For example, one set of actions will reconfigure the confluence of the Yankee Fork and West Fork to open flow to the historical river channel, maintain perennial flow, reconnect historical floodplain and wetland habitat, place wood for cover and habitat diversity, replant riparian vegetation, and reduce the width of the existing river channel by creating floodplain habitat. These actions should increase juvenile

riparian areas, instream structure, substrate, and hydrologic conditions, and which also limited juvenile rearing habitat (2014 BiOp at 295).

²⁰ Approaches to restoring this reach of the Yankee Fork have been the subject of multiple assessments and reviews. One review raised questions regarding potential toxic contamination in the area as a result of the historical dredging and mining. A second matter the Action Agencies needed to address was cultural resource conservation related to the historical mining operations. These issues have now been resolved and action implementation has begun. In addition, Reclamation completed tributary and reach assessments that identify subwatersheds and reaches with the best potential habitat for Chinook salmon (2014 BiOp at 296).

rearing habitat, increase high water and thermal refugia, increase adult spawning and holding habitat, and improve access to the West Fork of the Yankee Fork (2014 BiOp at 295-297; 2014 NOAA B47 at 4056-4059; B389 at 39295-39297; B48 at 4317 and 4438).

50. The Action Agencies are continuing to work closely with the Idaho Office of Species Conservation, Custer County, Shoshone-Bannock Tribes, Upper Salmon Basin Watershed Project, Idaho Department of Fish & Game, US Forest Service, Yankee Fork Interdisciplinary Team, landowners, and other responsible individuals and agencies to refine the habitat improvement actions evaluated by the 2012 expert panel and the supplemental actions to ensure their implementation in a manner that achieves optimum benefits (2014 BiOp at 296; 2014 NOAA B47 at 4056-4059).

D. SUPPLEMENTAL ACTIONS

51. Mr. Nigro's declaration (paragraph 47 and appendix B, sections 1.1 and 4) makes statements about the supplemental actions that are unfounded and indicate misunderstandings about the supplemental actions, including the reasons for identifying them, how they were identified, how they were and will be evaluated, and the certainty that they will be implemented.

52. For example, Mr. Nigro states (in paragraph 47) that "where HQIs were deemed insufficient to accomplish the anticipated results, the Action Agencies, without consulting the expert panels, added new actions with vague and unspecified results." Mr. Nigro also states that the "Action Agencies' used the supplemental action process to develop habitat mitigation actions ...because they deemed the 2012 Expert Panel estimates as 'extremely conservative'" (appendix B, section 4, paragraph 1).

53. The Action Agencies identified supplemental actions not because they thought the expert panel results were conservative, but because for seven populations, their analysis, based on

expert panel results and the CHW method, indicated that actions implemented through 2011 and reviewed by the 2012 expert panels for implementation through 2018, were not projected to achieve the RPA Action 35 Table 5 HQI performance standards without an increase in the pace and/or focus of implementation (2014 BiOp at 282-283).

54. For these seven populations, the Action Agencies worked with Accord and non-Accord partners who participate on local implementing teams (specifically, with the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, the Shoshone-Bannock Tribes, the Yankee Fork Inter-Disciplinary Team, and the Nez Perce Tribe) to identify supplemental tributary habitat actions. The Action Agencies never consult with expert panels when identifying actions; they work with local recovery planning groups, tribes, and other implementing partners to identify actions, based on recovery plans, subbasin plans, tributary and reach assessments, and other available information (see footnote 16 above and 2014 BiOp at 245-252). All the supplemental actions are informed by limiting factors analyses, tributary and reach assessments, and other studies developed by local technical teams, tribes, or federal agencies (2014 BiOp at 282). The process for identifying the supplemental actions was thus exactly the same, involving the same partners and same basis for selecting actions, as for any other actions planned for implementation under the tributary habitat program since its inception.

55. Further, we disagree that the projected benefits of the supplemental actions are vague and unspecified. It was not possible to consult the expert panels to evaluate the benefits of the supplemental actions because reconvening the expert panels was not feasible in the time allowed to complete the court-ordered remand. Instead, the Action Agencies made an interim estimate of the benefits of the supplemental actions based on 2012 expert panel reviews of the same type of actions for the same populations. The method and assumptions are clearly documented in

Appendix B of the Action Agencies' 2013 Comprehensive Evaluation (2014 NOAA B47 at 4072-4078), and summarized in the 2014 Supplemental BiOp (2014 BiOp at 283). Further, NMFS reviewed the strategies for all populations for which the Action Agencies identified supplemental actions and determined that implementation of the actions and achieving the benefits was reasonably certain (see population-specific discussions in 2014 BiOp at 288-293, 295-298, 301-303, 306-308, and 309-311). Finally, these projected benefits will be independently evaluated by the expert panels when the panels convene in 2016 – so the supplemental actions will be evaluated using best available science (and using the same method used for other actions). If there are still shortfalls after all of this, the action agencies will need to identify additional actions and evaluate them using the best available science at the time.

56. In his declaration, Mr. Nigro claims that the Action Agencies “do not substantiate how the Expert Panel, Appendix E, Supplemental Projects, and Catherine Creek Atlas processes are comparable in terms of producing repeatable, scientifically robust, habitat improvement/survival estimates”(Appendix B, Section 3.4). I disagree. The so-called “Atlas process” is a process to identify actions, not to estimate their benefits (see 2014 BiOp at 257, 285, and 289). Any actions identified through that process will be evaluated by expert panels, using all available information in 2016. As noted above, the supplemental actions will also be evaluated by expert panels in 2016, using all available information. As for the so-called Appendix E method, it was an earlier application of the same general approach that is used in the 2008 BiOp to estimate benefits of tributary habitat improvement actions. The Appendix E method was used primarily in the 2004 FCRPS BiOp. It has been superseded by the CHW method, which represents best available science, and the CHW method has now been applied to all populations with the exception of middle Columbia steelhead populations, since those populations all had small habitat

improvement commitments and actions projected to achieve the commitments generally had been implemented by 2009 (see 2014 BiOp at 230-232).

57. Mr. Nigro (Appendix B) also implies that the supplemental actions are identified with less detail than actions reviewed by the expert panels, and are less likely to be implemented than actions that have been reviewed by the expert panels. He expresses the notion that implementation of supplemental actions cannot begin until after expert panels have reviewed supplemental actions. None of these claims is true.

58. The supplemental actions are identified in the same level of detail as the actions that were reviewed by the expert panels. Actions reviewed by the 2012 expert panels are summarized by population in the Action Agencies' 2014-2018 Implementation Plan, Appendix A (2014 NOAA B48 at 4309-4337). The supplemental actions are summarized by population in the 2014–2018 Implementation Plan, Appendix B (2014 NOAA B48 at 4435-4439). Both include populations to be addressed, limiting factors to be addressed, and metrics associated with the actions. In the case of the actions reviewed by expert panels, Appendix A includes reference to the umbrella projects under which the Bonneville Power Administration (BPA) will fund contracts to implement specific actions. Appendix B, the supplemental actions, includes the source of the projects. There is not a specific BPA project listed for each supplemental action because while some of the supplemental actions were included in proposals submitted to the Northwest Power and Conservation Council's (NPCC) 2013 geographic review and are traceable to specific BPA projects, not all the supplemental actions have yet been reviewed under the NPCC's Fish and Wildlife Program.²¹

²¹The Fish and Wildlife Program guides BPA funding of mitigation for the effects of the FCRPS dams, and the program provides additional review of BPA-funded tributary habitat improvement actions implemented under the BiOp (see 2014 NOAA B47 at 4085-4086).

59. Regarding implementation, the Action Agencies are treating supplemental actions in the same manner as actions that have already been reviewed by expert panels. Any action, including any supplemental action, can be implemented prior to the next expert panel workshops (assuming the action has received a favorable review under the NPCC's Fish and Wildlife Program and that a contract has been issued for its implementation). The next expert panel would then evaluate the action as implemented (2014 RTC at 32). For the Fish Accord partners that contributed to the list of supplemental actions, the actions represent part of their negotiated commitment to deliver a component of the Table 5 HQI performance standards. As noted above, in paragraph 58, in some cases, these supplemental actions have been submitted as part of projects being reviewed under the NPCC's geographic review process (2014 BiOp at 282-283).

60. The Nez Perce Tribe specifically questioned whether funding was adequate to implement supplemental actions for the Lochsa and South Fork Clearwater by 2018. The Action Agencies are responsible for achieving the biological survival improvements in RPA Action 35, Table 5, not for spending a specified amount of money. NMFS based its assessment of the habitat program on achievement of those survival commitments, not on the Action Agencies' estimates of current or future funding amounts or how funds will be distributed (Kratz declaration, ECF 1564, paragraph 13). In their 2008 and 2010 Records of Decision for the 2008 FCRPS BiOp and the 2010 Supplemental FCRPS BiOp (see, e.g., 2014 NOAA C000310), the Action Agencies state that they intend to implement the RPA, and NMFS does not see any reason why this is not possible. Also, as noted in the 2014 BiOp, the Action Agencies have established a track record of implementation and their 2014–2018 Implementation Plan lays out strategies for continuing to implement the 2008 FCRPS BiOp RPA through 2018 (2014 BiOp at 266-318; 2014 NOAA B47 and B48). NMFS has no information that contradicts these

commitments by the Action Agencies to implement the RPA's tributary habitat program. Further, as the Nez Perce Tribe itself has noted in submissions to the NPCC's Geographic Review process, the Tribe "has demonstrated the continued ability and expertise to manage watershed restoration projects and achieve the results desired by BPA, and this has been recognized by increased BiOp funding levels from BPA." (Exhibit 2. Lower South Fork Clearwater River Watershed Restoration Proposal, under "Explanation of Recent Financial Performance." The attached pages [highlight added] are excerpted from the Nez Perce Tribe's submittal [GEOREV-2010-003-00, dated 12/7/2012] to the NPCC's geographic review process [see 2014 NOAA B196 at 16252].) This demonstrates that funding has been sufficient to implement tributary habitat improvement actions to date.

61. Mr. Nigro also questions whether the Grande Ronde and Catherine Creek "Atlas" processes will yield actions for implementation by 2018 (Appendix B, Section 4, paragraph 2). The "Atlas" processes are collaborative efforts being supported by the Action Agencies in Catherine Creek and the Upper Grande Ronde to build on existing tributary and reach assessments, integrate available data, and better identify opportunities for habitat improvement actions that address limiting factors (2014 BiOp at 257). These processes are laudable examples of how the Action Agencies have carried out scientifically sound work in a collaborative manner. The Atlas processes have helped focus actions where they will provide the most benefit in areas where a greater scale of improvement needed. Based on work under the Catherine Creek Atlas project to date, the Action Agencies and local technical and implementing partners now have a much better understanding of, and agreement on, key areas for habitat restoration as well as the types, scale, and sequencing of actions needed to meet or exceed the BiOp RPA Action 35 Table 5 performance standard for that population. Based on progress to date in the Grande Ronde

Atlas process, we have every reason to anticipate similar achievements there well in advance of the 2016 expert panel reviews. The Atlas processes also ensure that if some actions are delayed in the near term there will be additional opportunities to provide equivalent benefits. In both Catherine Creek and the Upper Grande Ronde, biologists are using draft restoration priorities in discussions with landowners in key areas to develop action proposals. The goal is to have actions for expert panels to evaluate in 2016 that will be implemented by 2018. Based on the work accomplished to date, NMFS does not agree with Mr. Nigro's assessment of the Atlas processes. In fact, the Atlas processes have focused additional resources and effort on areas with particularly challenging habitat needs to provide an extra measure of confidence that effective habitat actions can and will be completed.

V. TIMING OF IMPLEMENTATION AND WHEN BENEFITS WILL OCCUR

62. Mr. Nigro (paragraphs 43, 45-46) also raises questions about when habitat changes and population survival benefits will accrue and the ability to empirically demonstrate the results. NMFS has consistently explained that benefits of some types of habitat improvement actions will occur relatively quickly, while for other types of actions benefits may take years, even decades, to be realized (2008 BiOp at 7-45; 2014 BiOp at 233-236).

63. Changes in fish survival (and the ability to demonstrate those benefits) are affected by factors including the time necessary for a habitat action to improve habitat function as well as the complexity and timing of the salmonid life-cycle and by variability in returns from year to year. Given these variables, it is not possible to empirically validate with statistical significance changes in egg-to-smolt survival for every population within the timeframe of the BiOp (see additional discussion below, in paragraphs 75-82; also see 2014 BiOp at 51-54, 66-69, 243-244 and 2014 RTC at 30-31). We are, however, continuing to conduct research, monitoring, and evaluation (RME) to validate assumptions, confirm whether results of the program to date are

consistent with our expectations, and ensure that new information on action effectiveness and fish-habitat relationships is incorporated into implementation of the program.

64. Habitat improvement actions must be implemented before the end of 2018, but the exact date of implementation is not specified and could change due to factors including weather conditions, permitting delays, and the logistics of coordinating construction (2014 RTC 30-31). The 2008 BiOp RPA did not require the Action Agencies to specify a certain date for implementation. It did require them to show clear and steady progress in implementation (2008 BiOp, Appendix [Reasonable and Prudent Alternative Table], at 41-43), and for almost all populations they have done so. For those where they have not (i.e., populations for which actions implemented through 2011 were projected to achieve $\leq 33\%$ of the Table 5 performance standard), NMFS performed additional review in the 2014 BiOp to establish reasonable certainty that actions consistent with achieving the table 5 survival improvements would be implemented by 2018. (For discussion of each population in this latter category and NMFS's rationale for determining that achieving the HQI performance standard is reasonably certain, see the 2014 BiOp at 286-316.)

65. Once an action is implemented, habitat begins to change. But as we have continually noted, depending on the type of action, there may be a lag between completion of the action and the projected change in habitat function. While some actions would lead to an immediate change in habitat conditions (e.g., removal of a barrier would immediately open new habitat for use by salmon and steelhead), other actions may involve changes that occur over years to decades (e.g., actions to restore the riparian zone may take years to achieve full benefits) (2008 BiOp at 7-43—7-46; 2014 BiOp at 233-236). Even with actions that immediately change habitat, a full response

in survival improvement would still take time, given the multiyear life cycle of salmon and steelhead and year-to-year variation in survival driven by environmental factors.

66. This lag time in realizing the benefits of habitat actions is appropriately considered when the expert panels estimate the change in limiting factor function resulting from habitat actions. Panels estimate change that will occur in the near-term (by 2018, the end of the BiOp period) and in the longer term (by 2033, 15 years after the end of the BiOp). The Action Agencies, in fact, use a conservative assumption and base their estimates of habitat function and survival change only on the expert panels' estimates of habitat benefits that will accrue in the near term (i.e., through 2018).²² In other words, the only benefits counted toward achieving the RPA Action 35 Table 5 HQI performance standards are those expected to accrue in the near term. As the expert panels' estimates of benefits through 2033 indicate, it is likely that many habitat actions will result in additional habitat quality and survival improvements in the longer term. As a result of this conservative approach, many benefits are projected to accrue in the longer term that are not incorporated in the 2008 BiOp analysis.

67. Even for an action likely to change habitat conditions immediately (such as removal of a barrier), because of the 3-to-5 year salmon life cycle, there would still be a lag before changes in survival would begin to occur. And even after survival change occurs, it may not be immediately possible to demonstrate it empirically because of natural variability in abundance and productivity (2014 RTC at 30-31).

²² We noted in our response to comments on the 2014 Supplemental BiOp that "it is most accurate to think of the expert panels' estimates...as providing near-term and long-term estimates of a change in limiting factor function as a result of habitat improvement actions" (2014 RTC at 31). This statement does not indicate that we are backing away from the connection between change in habitat and change in fish survival. Expert panels estimate change in limiting factor function—the Action Agencies estimate change in survival, using the CHW method (see footnote 16 above, and 2014 BiOp at 245-252). Thus our wording accurately reflects the expert panels' role.

68. Mr. Nigro (paragraph 43) discusses the Pahsimeroi spring Chinook salmon population specifically and implies that, based on the Action Agencies' analysis of implementation through 2011, an increase in smolt production should be detectable there, but is not, based on his analysis using smolt data through brood year 2007. Our interpretation differs.

69. First, Mr. Nigro's statement (paragraph 43) that "the habitat benefits are purported to have occurred by 2011" is incorrect.²³ In the 2014 BiOp, NMFS stated that actions implemented through 2011 were "sufficient to" achieve stated HQI (2014 BiOp at 269) or that the actions were "estimated to" have achieved the stated HQI (2014 BiOp at 273). Thus we did not state that the survival improvements had necessarily occurred or were empirically detectable for precisely the reasons described herein; we stated that based on best available science, actions had been implemented sufficient to lead to the survival improvement, and that we have a reasonable expectation that they will accrue.

70. Second, Mr. Nigro's expectation that the improvement should be demonstrable in empirical smolt data at this time is mistaken, and his analysis based on smolt data through brood year 2007 is not relevant, because, as described below (paragraphs 71-73), the most significant improvement actions were implemented in 2009. Juveniles produced by the 2007 brood year would have already migrated out of the tributary by that time and therefore could not have benefited from those actions.

71. Actions implemented from 2007 to 2011 to benefit spring Chinook salmon in the Pahsimeroi were largely actions to increase instream flows and improve habitat access by reconnecting channels and removing barriers (2014 NOAA B47 at 3979; B389 at 39241-39244). These actions were consistent with significant limiting factors identified in the draft recovery plan and by the expert panels (BR00072035, Chapter 4, Upper Salmon River Populations; 2014

²³ This misstatement is repeated in paragraph 46 of Mr. Nigro's declaration.

NOAA B389 at 39254). The draft recovery plan documents the extent to which the Pahsimeroi was limited by habitat capacity, as well as the existence of a strong relationship between streamflow and juvenile survival in the Pahsimeroi (BR00072035, Chapter 4, Upper Salmon River Populations, at 4.4-27, 4.4-30—4.4-34; see also 2014 NOAA B9). The most significant of these actions were not completed until 2009, when a series of actions (including eliminating cross-ditches, consolidating diversions, and obtaining conservation easements) approximately doubled the available habitat in Big Springs Creek (see figures 1-3). Prior to this work, few Chinook salmon redds were documented in the stream—for example, only two Chinook salmon redds were found in Big Springs Creek in the 2008 spawning surveys. In 2009, 69 redds were documented there (see figure 4). These data confirmed our expectation that fish would use the newly opened habitat. Initially, although fish were using the newly available habitat, there were likely not significantly more fish present in the Pahsimeroi population; they were just distributing themselves into the newly opened habitat (since spawners returning during the first several years after action implementation had actually out-migrated from the habitat before it was improved).

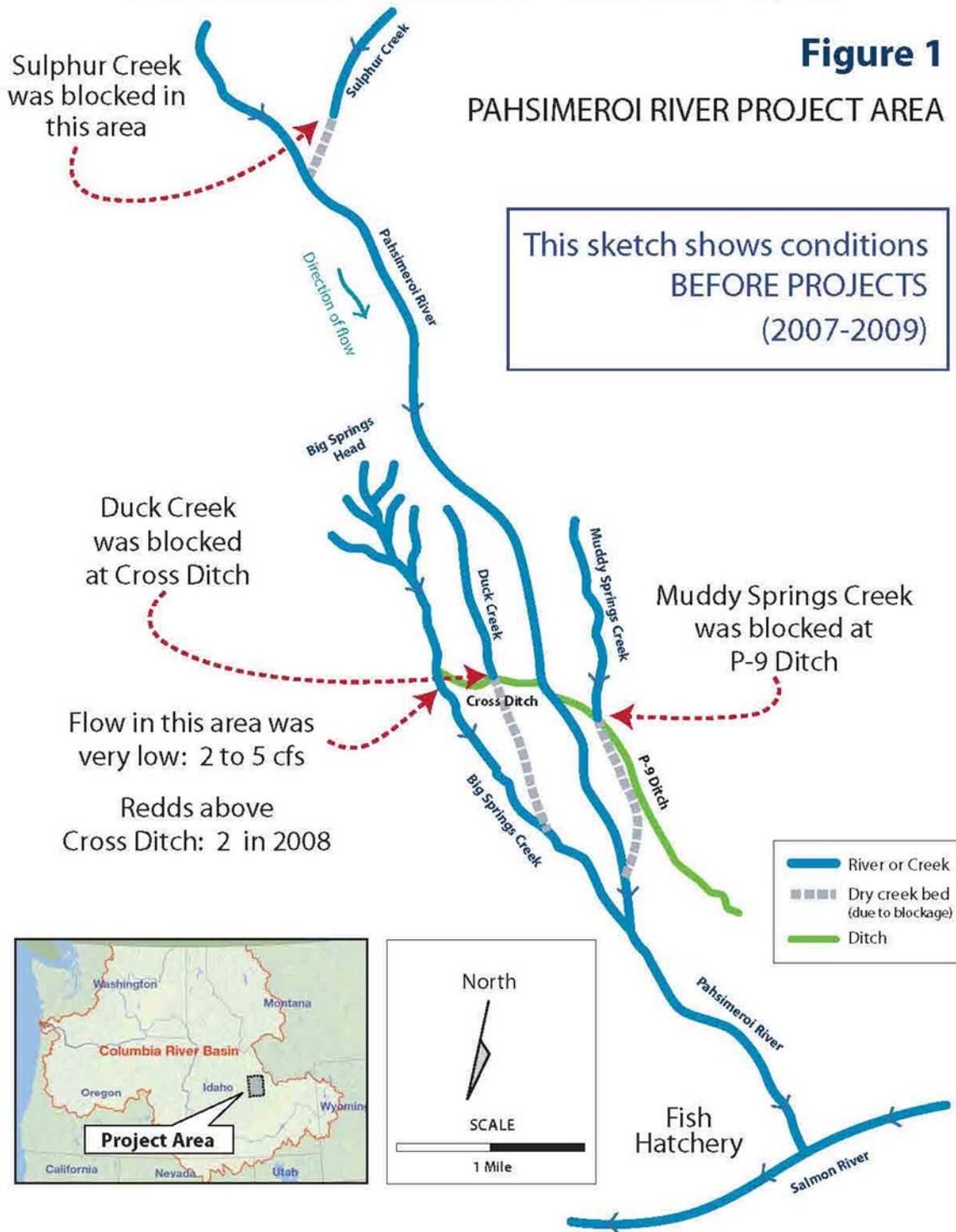


Figure 2
PAHSIMEROI RIVER PROJECT AREA

What was done:

- The P-9 Ditch was eliminated.
- The Cross Ditch was eliminated.
- The Big Springs Creek low flow was eliminated.
- Duck Creek is now connected to Big Springs Creek.
- Muddy Springs Creek is now connected to the Pahsimeroi River.
- Sulphur Creek is now connected to the Pahsimeroi River.

This sketch shows conditions
AFTER PROJECTS
(2009)

Flow in this area is now 30 to 40 cfs

Flow in this area is now 5 to 7 cfs
(previously 1 to 2 cfs)

Redds above
Cross Ditch: 69 in 2009

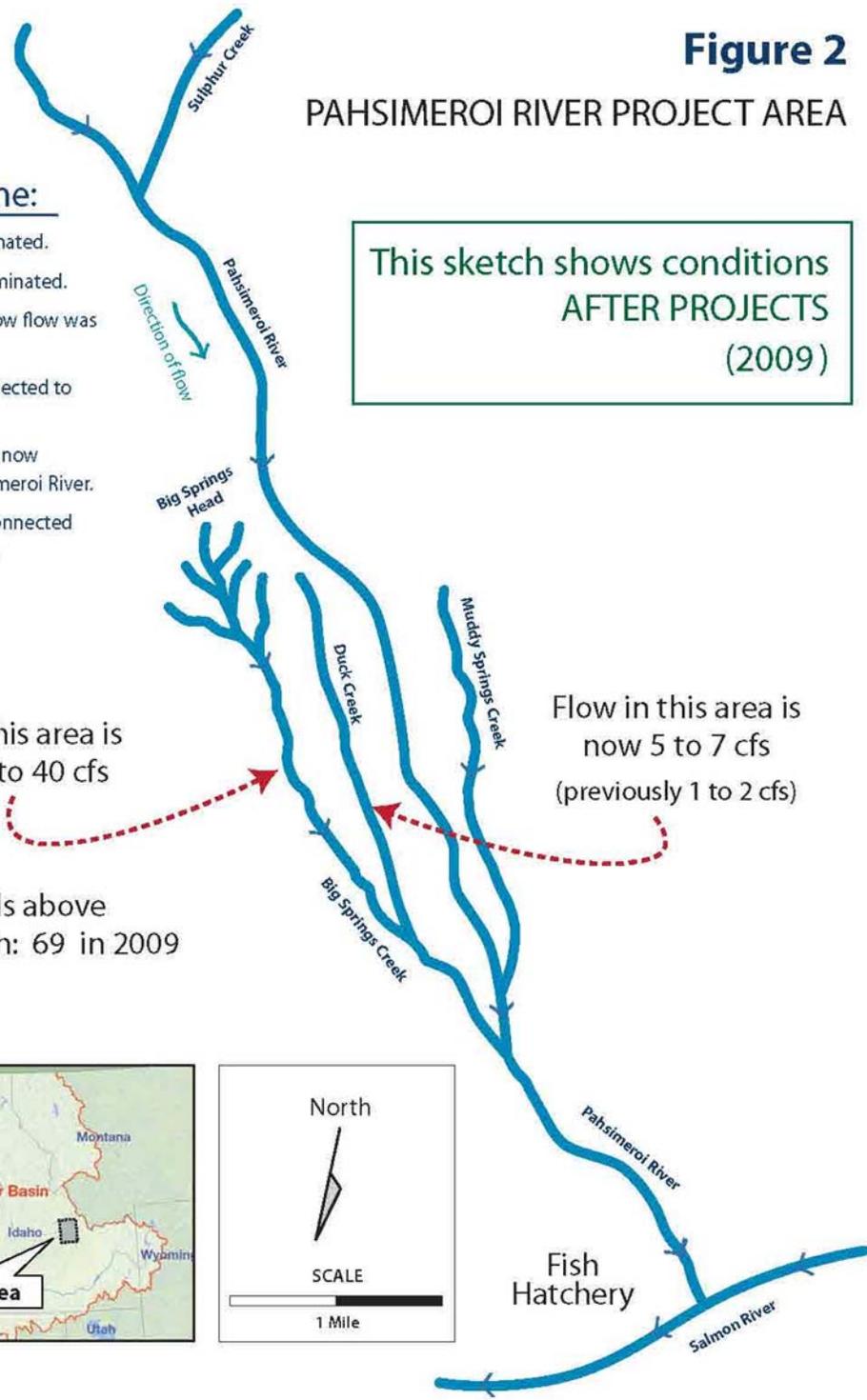
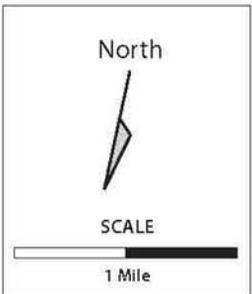


Figure 3. Tributary habitat actions completed in the Pahsimeroi, 2007-2009

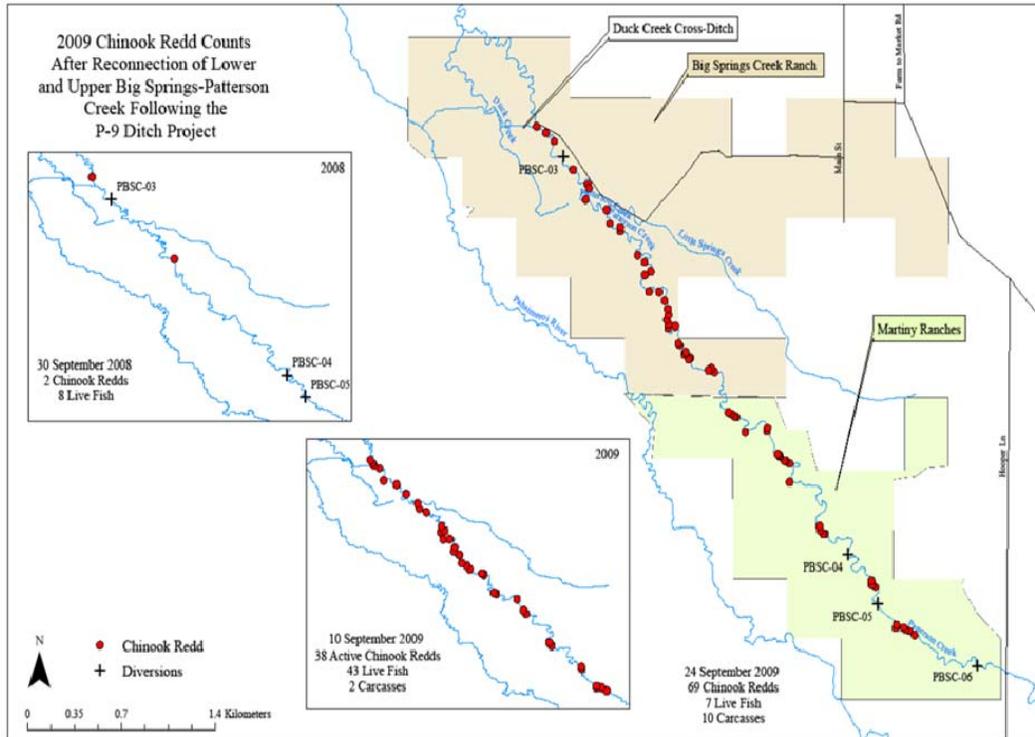
Case 3:01-cv-00640-RE Document 1733-3 Filed 10/23/2009 Page 1 of 2
Tributary Habitat Actions Completed in the Pahsimeroi – 2007-2009¹
& 2010-2012 Planned Actions

Limiting Factor	2007-2009 Planned Actions	2007-2009 Completed Actions	2007-2009 Completed Replacement Actions	Metrics: (2007-2009)	2010-2012 Planned Actions	Metrics (2010-2012)
Streamflow	Water transactions to secure instream flow	Water transactions to secure instream flow		29.6 cfs ² in Big Springs Creek and Pahsimeroi	PBSC #1 Water Conservation	5 cfs
Migration Barriers/ Fish Passage	Soil & Water Conservation District diversion removals	SWCD diversion removals (P-9 Ditch and Cross Ditch)		14 miles total improved includes Duck Creek, Muddy Springs Creek, Big Springs Creek and Pahsimeroi		
	Patterson Big Springs 1/2/3 diversion replacements to allow fish passage	Note: Rescheduled for completion in 2010. 3 replacement projects implemented in 2007-2009.	Muddy Springs Creek Reconnect Duck Creek Reconnect Diversion eliminated – #5 Patterson Big Springs	(included above)	Patterson Big Springs 1/2/3 diversion replacement PLUS Patterson Big Springs 4,6,7/8 and 9 diversion replacements	Expert panel will provide metrics.
	Furey Lane reconnect	Note: Replacement project implemented in 2007-2009	Sulphur Creek Reconnection	1.0 miles access		

¹ All completed actions were implemented with the involvement of multiple partners including the Custer Soil and Water Conservation District, Idaho Department of Fish and Game, local landowners and others. Actions may include multiple components. This table shows the 2007-2009 planned actions obtained at the 11/22/06 expert panel workshop and corresponding 2007-2009 completed or completed replacement actions obtained at the May 2009 expert panel workshop. The expert panels considered that the 2007-2009 completed and completed replacement actions provided the same change in habitat function as provided by the 2007-2009 planned actions. Consequently, the chinook and steelhead survival calculations in the 2007-2009 implementation period (derived from the change in habitat function) remained as stated.

² Instream flow rights secured for 20 years with option to renew initial agreement.

Figure 4. Chinook redd counts pre- (2008) and post- (2009) reconnection of Upper Big Springs Creek



72. We would expect most of the benefit to accrue as juveniles were able to benefit from improved quantity and quality of summer rearing habitat. More habitat with higher flow would improve juvenile survival during summer months in areas that otherwise would have been inaccessible or have had inadequate flow due to irrigation withdrawals. Since the most significant actions occurred in 2009, we would expect the progeny of these spawners (i.e., the 2010 juveniles) to benefit during their first summer in freshwater. These juveniles would begin returning as adults in 2012, with most returning in 2013-2014. But because of annual variability in returns, it would not be valid to make conclusions based only on 1 to 2 years of data. Mr. Nigro's expectation that smolt data through brood year 2007 (smolts from brood year 2007 would return as adults in 2010-2013) would indicate benefits of these actions is therefore unfounded. Based on the expert panel results and the resulting habitat quality and survival improvement projections using the CHW method, as well as supporting documentation in the draft recovery plan, our expectation that actions implemented through 2011 will result in the stated HQI of 61% is reasonable.

73. RME data, as it becomes available, will allow the Action Agencies and NMFS to confirm or modify assumptions and evaluate needs for additional or alternative actions. For instance, a smolt trap in the Pahsimeroi allows for counting of outmigrating smolts and, combined with spawner data, will eventually allow us to document changes in the number of recruits per spawner following implementation of the habitat improvement actions. Additionally, modeling tools currently in development will allow us to apply empirical information from one population to other populations with similar habitat and population characteristics. NMFS and the Action Agencies will continue to use the best available

information on habitat benefits and survival changes, and all emerging information from the RME program, to calibrate the accomplishments of the tributary habitat program.

74. The complications of the salmonid life cycle and of detecting change resulting from habitat improvements at the population scale highlight the utility, power, and importance of the approach used in the BiOp: assumptions of the program are clearly articulated, predictions are based on best available science and information, and monitoring and evaluation are in place to validate assumptions at each step in the process and to improve predictive capabilities over time.

VI. RESEARCH, MONITORING, AND EVALUATION TO VALIDATE KEY ASSUMPTIONS, DETECT HABITAT CHANGE AND SURVIVAL IMPROVEMENTS, AND IMPROVE PREDICTIVE METHODS

75. Mr. Nigro makes various claims regarding the programs underway to validate the 2008 BiOp's assumptions regarding egg-to-smolt survival improvements. Overall he contends that programs to monitor and evaluate whether survival improvements are being achieved are inadequate. I address the contention below but first must address several misconceptions. Mr. Nigro states (in paragraph 46) that:

...the benefits of habitat actions are measured in units of "Habitat Quality Improvement" (HQIs). Although it is not entirely clear what an "HQI" is, it appears to be geographically, rather than biologically based." That is, the metrics appear to be "miles of stream" or "acres of wetland." Although these metrics are measurable, they do not explicitly reflect the responses of the salmon or steelhead populations using the habitat. Instead, habitat projects should be evaluated by measuring changes in intrinsic productivity, smolt production, survival and capacity.

76. "HQI" as explained in multiple documents (see, e.g., 2014 BiOP at 251-252; 2014 NOAA B42; B47 at 4112-4116; B422 at 49182-45222) is an estimate of overall habitat function that is linked to egg-to-smolt survival using a method developed by the CHW and that will be continually refined as available science allows. Thus, benefits of habitat actions are reported as, and are being evaluated in terms of, changes in habitat function and egg-to-smolt survival. The metrics are habitat quality and egg-to-smolt survival, not simply miles of stream or acres of

wetland.²⁴ Thus, Mr. Nigro is simply wrong that HQI is merely geographically, and not biologically, based.

77. As for Mr. Nigro's view of how habitat improvement actions should be evaluated, the discussion above highlighted how the salmonid life-cycle and annual variability complicate the ability to empirically document survival improvements within the time frame of the BiOp. Mr. Nigro (paragraph 45)—and in fact NMFS (2010 BiOp at Section 2, pp. 127, 129)—also point to another complication: detecting statistically significant increases in productivity at the population scale as a result of habitat restoration is complex, and researchers must look for situations where they can treat enough of a watershed to measure an effect (which, in fact, is exactly what is occurring in some of the intensively monitored watersheds described below, in paragraphs 78 and 81) (2014 BiOp at 236). It is simply not possible to empirically validate with statistical significance changes in egg-to-smolt survival for every population within the timeframe of the BiOp. However: (1) just because these results are difficult to detect with statistical significance over a short period of years does not mean they are not occurring, and (2) it is not necessary to monitor every population to have reasonable certainty that changes are occurring. An alternative approach is to use various lines of evidence to inform our understanding of action effectiveness and fish-habitat relationships and then apply that information more broadly as appropriate. This is a reasonable scientific approach where empirical data are limiting.

78. The research, monitoring, and evaluation (RME) program in place for the 2008 BiOp tributary habitat program is addressing the complications discussed above in a manner that builds

²⁴ Mr. Nigro is confusing the Table 5 HQI performance standards, for which the metrics are habitat condition as linked to survival, with summary metrics that the Action Agencies report in their annual reports and comprehensive evaluations at the population scale. RPA Action 35 required the Action Agencies to report the summary metrics, but they are not directly linked to the calculation of HQI. (For additional discussion of how HQI is calculated, see the references cited in paragraph 12, above.)

on current knowledge, fits within the scale and pace of implementation, and allows continued testing of hypotheses and incorporation of new information as it becomes available. The program, which is a network of various elements that has evolved out of seven RPA Actions and section III of the AMIP, is described in detail in various documents (see 2014 NOAA B32; B41; B352; 2014 BiOp at 239-240, 261-263). The program has undergone independent science review: the Independent Scientific Review Panel (ISRP) and Independent Scientific Advisory Board (ISAB) of the Northwest Power and Conservation Council have reviewed the 2008 BiOp's overall RME strategy, as well as specific components, multiple times over the past decade (see 2014 RTC at 34-36). Its major components include:

- Monitoring to evaluate fish response to the aggregate effects of multiple habitat actions at the watershed or population scale through the use of intensively monitored watersheds (IMWs). Some IMWs (e.g., the Entiat) are being designed to yield statistically significant results at a watershed scale, in a way that will allow us to infer what results would be from smaller-scale restoration efforts, thus explicitly addressing the issue of statistical power raised by Mr. Nigro.
- Habitat status and trends monitoring strategically paired with adult and juvenile fish status and trends monitoring. This will provide sufficient data to calibrate mathematical models simulating the overall effects of habitat improvements on changes in habitat condition and, in turn, the effects of these changes on fish abundance and productivity.
- Development of tributary habitat models that take advantage of advancements in habitat monitoring and fish/habitat relationships to link, both empirically and mechanistically, measures of habitat quality with fish survival. This will allow for improved estimates of the effect of changes in habitat quantity and quality on fish population trajectories as well as improved targeting of habitat restoration efforts.
- Action effectiveness monitoring to determine if actions are meeting their biological objectives and to help identify actions that most effectively address specific limiting factors.
- Implementation and compliance monitoring to verify that habitat improvement actions are completed as planned and are functioning as intended.

79. This multifaceted RME approach includes components that will inform conclusions regarding habitat status and trends, fish population status and trends, fish-habitat relationships

(i.e., how changes in habitat affect fish survival), fish response to various treatment types, and the effectiveness of various types of actions in addressing specific limiting factors. Combined with the predictive method based on best available science to estimate changes in habitat and survival, the RME program allows testing and validation of assumptions in a step-by-step process:

- When an action was implemented, did habitats start changing the way we thought they would?
- If we opened up habitat, are fish using it?
- For major types of actions, is habitat changing in the direction we had anticipated?
- Are fish populations responding in the way we had anticipated?

80. Data, analysis, and understanding regarding one population, location, or type of action can be applied appropriately to other populations and locations. The 2008 BiOp and 2014 Supplemental BiOp explicitly require the Action Agencies to ensure that new information that would support the work of the expert panels or be relevant to relating habitat change to change in egg-to-smolt survival be considered relative to the CHW method currently in use (2008 BiOp, Appendix [Reasonable and Prudent Alternative Table], at 42-43, 82-82; 2014 BiOp at 261).

81. The Action Agencies, other implementing entities, and researchers and technical teams are using the RME information as it becomes available. For example,

- The Action Agencies provided RME data to the 2012 expert panels and the panels considered it in determining limiting factor function and weight and in estimating action benefits.²⁵ The Action Agencies and NMFS are currently discussing RME products to provide to the expert panels in 2016.

²⁵ See, e.g., 2014 NOAA B389 at 38850, line 1: “Fine Sediment based on CHaMP data in 2011 average was 4.4 but only 1 year data PFC is 12 current 2011 condition is a conservative value. Embedness Based on CHaMP data in 2011 averagewas 13 PFC is less than 20 current 2011 condition is a conservative estimate”; at 39611, line 1: “Champ data used to estimate improvements”; at 38765, line 2: “NPT Lolo Creek monitoring report 2011 reports heavily impacted by history of logging infrastructure development roads powerlines etc and or grazing”; at 39029, line 1: “Small part of total reach length,

- In the Lemhi subbasin, data from various programs on habitat status and trends, fish abundance and survival, and empirical fish-habitat relationships are being leveraged and combined in a watershed model to enhance the evaluation of completed habitat improvement actions and predict the benefits of future actions (2014 NOAA B41 at 2720; 2014 NOAA C021228)
- Based on the increase in numbers and survival of juvenile steelhead in response to habitat treatments in the Bridge Creek IMW (see 2014 NOAA B41 at 2716-2717, 2721; B47 at 3324, 3533, 3635-3537, 3734-3736), the restoration methods used there have formed the basis for workshops to teach the appropriate use of these methods to practitioners throughout the Northwest.
- The Entiat River IMW is a watershed-scale restoration effort where implementation of restoration actions is driven by a statistical design that will detect benefits at the population scale. (In other words, this IMW was designed to address the issue that Mr. Nigro—and NMFS—have raised as one of the complexities of detecting with statistical significance the effects of restoration at the population scale (see paragraphs 77-78, above, and 2014 NOAA B342).
- The Grande Ronde and Catherine Creek Atlas processes described above (see paragraph 61, above) are assembling and interpreting all available information—including fish and habitat monitoring data in those subbasins—to better identify opportunities for habitat improvement actions that address limiting factors.
- Tributary habitat life-cycle modeling efforts being developed collaboratively in several subbasins and, in part, to meet the AMIP requirements regarding life-cycle models are using data being collected through the tributary habitat RME program (see paragraph 78, above, and 2014 NOAA B475).

82. Multiple documents summarizing tributary habitat RME results to date have been developed (2014 BiOp 240-242; 2014 NOAA B41; 2014 NOAA B47 at 3353-3356, 3530- 3540, 3711-3742; 2014 NOAA B61), and reporting at the specific project level is extensive (see, e.g., 2014 NOAA B2, B30, B82, B429, B459, B478). These results are showing the types of changes in habitat that we would expect to see, along with increased fish densities in areas treated with improvement actions (e.g., Entiat River IMW, Methow River IMW, Upper Middle Fork John

Monitoring will provide insight on benefits Final value will be evaluated considering supplemental info potential benefit to 5.1 tbd later.”

Day). Results in Bridge Creek and the Lemhi River also show improved fish survival (2014 NOAA B41; 2014 BiOp at 240-242).

83. In their interpretations of NMFS's confidence in the RME results to date, the plaintiffs seize on two words: *appear* and *may*. In their view, our statement that preliminary RME results “*appear* to be supportive of the working hypotheses that implementation of ...[the] RPA is contributing to improvements in fish population abundance and productivity” but that “further monitoring *may* more clearly indicate whether increases result from the restoration actions” indicates that we are not reasonably certain that the tributary habitat RPA actions will provide the benefits. The plaintiffs are reading far too much into these two words. It is more relevant and accurate to look at the overall meaning of what we say in the 2014 Supplemental BiOp (see 2014 BiOp at 239-242 and 260-263) and what the RME results to date are clearly indicating. We have been seeing what we expected to see; the results to date are consistent with our expectations, and we have seen no information to date that would refute the assumptions made in the 2008 BiOp.

84. We said that preliminary results “appear to be supportive” rather than saying the results *confirm* our expectations because it is biologically and statistically not possible for results to decisively confirm our expectations at this point. We said that further monitoring “*may*,” rather than “*will*,” more clearly indicate whether increases result from the restoration actions, because the latter word would presuppose the results of the monitoring. More data are needed, and will continue to be collected, to determine with statistical significance whether changes in habitat status and trends and corresponding changes in fish production are occurring.

85. We disagree that the data and methods to connect specific changes in habitat to specific increases in survival do not exist. Not only is the current method for estimating changes based

on best available science, but the tributary habitat RME and life-cycle modeling program is one of the largest and most sophisticated of its kind. The program is being shaped to yield information on the benefits of habitat improvement actions with a degree of detail and precision rarely attempted before. It is noteworthy in scale and scope and in the information it is designed to yield. We expect it to provide significant information that will help support implementation of the 2008 BiOp, fine-tune the next BiOp, and significantly advance the science of habitat restoration and salmon recovery in general.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 4, 2015, in Portland, Oregon.


Michael Tehan
Michael Tehan



Hovde, Jay <jhovde@usbr.gov>

CC-44 Change Request Form 002

6 messages

Hovde, Jay <jhovde@usbr.gov> Fri, Jan 17, 2014 at 5:04 PM
To: Darrell Dyke <DDyke@usbr.gov>, Allen Childs <allenchilds@ctuir.org>, Mary Rosen <maryrosen.uswcd@gmail.com>, Colleen Fagan <colleen.e.fagan@state.or.us>, Timmie Mandish <tamandish@bpa.gov>, Jeff McLaughlin <jmclaughlin@usbr.gov>, Steven Montague <Smontague@usbr.gov>
Cc: Jeffrey Fealko <jfealko@usbr.gov>, Craig Schellsmidt <unionswcd@hotmail.com>

All,

Thank you for attending the conference call and providing your input today regarding Side Channel 1. Attached is a change request form outlining our discussion today with a decision based on the groups input.

Please reply to this email confirming your support of the decision by COB January 21st.

If you have any questions regarding these forms or the decisions made feel free to call or email.

Thanks,

Jay Hovde P.E.
Civil Engineer
Bureau of Reclamation
1150 N Curtis Rd, Suite 100
Boise, Idaho 83706
Phone 208.378.5247
Fax 208.378.5171

 CC-44_PII-Change_Request_Form-Side Channel 1.pdf
29K

McLaughlin, Jeff <jmclaughlin@usbr.gov> Tue, Jan 21, 2014 at 8:35 AM
To: "Hovde, Jay" <jhovde@usbr.gov>
Cc: Darrell Dyke <ddyke@usbr.gov>, Ferron Peterson <fpeterson@usbr.gov>, Jeffrey Fealko <jfealko@usbr.gov>

Good morning

I'm in agreement with the decision. Thanks for the writeup and description.

Jeff McLaughlin
CSRO Habitat Program Manager
[Quoted text hidden]

Montague, Steven <smontague@usbr.gov> Tue, Jan 21, 2014 at 8:50 AM
To: "Hovde, Jay" <jhovde@usbr.gov>

Jay -

I concur with making this change to eliminate Side Channel 1.

Steve Montague

On Fri, Jan 17, 2014 at 5:04 PM, Hovde, Jay <jhovde@usbr.gov> wrote:

[Quoted text hidden]

Mandish, Timmie A (BPA) - KEWL-4 <tamandish@bpa.gov> Tue, Jan 21, 2014 at 9:06 AM
To: "Hovde, Jay" <jhovde@usbr.gov>, Darrell Dyke <DDyke@usbr.gov>, Allen Childs <allenchilds@ctuir.org>, Mary Rosen <maryrosen.uswcd@gmail.com>, Colleen Fagan <colleen.e.fagan@state.or.us>, Jeff McLaughlin <jmclaughlin@usbr.gov>, Steven Montague <Smontague@usbr.gov>
Cc: Jeffrey Fealko <jfealko@usbr.gov>, Craig Schellsmidt <unionswcd@hotmail.com>

Support confirmed for the change. Thanks Jay-

Timmie

~~~~~  
Timmie Mandish  
Fish Biologist, Fish & Wildlife Project Manager  
BPA- KEWL  
P.O. Box 3621  
Portland, OR 97208

PH 503-230-3983  
FAX 503-230-4564

From: Hovde, Jay [mailto:jhovde@usbr.gov]  
Sent: Friday, January 17, 2014 4:05 PM  
To: Darrell Dyke; Allen Childs; Mary Rosen; Colleen Fagan; Mandish, Timmie A (BPA) - KEWL-4; Jeff McLaughlin; Steven Montague  
Cc: Jeffrey Fealko; Craig Schellsmidt  
Subject: CC-44 Change Request Form 002

[Quoted text hidden]

---

Colleen Fagan <colleen.e.fagan@state.or.us> Tue, Jan 21, 2014 at 9:30 AM  
To: Allen Childs <allenchilds@ctuir.org>, Colleen Fagan <colleen.e.fagan@state.or.us>, Darrell Dyke <dodyke@usbr.gov>, "Hovde, Jay" <jhovde@usbr.gov>, Jeff McLaughlin <jmclaughlin@usbr.gov>, Mary Rosen <maryrosen.uswcd@gmail.com>, Steven Montague <smontague@usbr.gov>, Timmie Mandish <tamandish@bpa.gov>  
Cc: Jeffrey Fealko <jfealko@usbr.gov>, Craig Schellsmidt <unionswcd@hotmail.com>

ODFW supports the decision to remove Side Channel 1.

Colleen

From: Hovde, Jay [mailto:jhovde@usbr.gov]  
Sent: Friday, January 17, 2014 4:05 PM  
To: Darrell Dyke; Allen Childs; Mary Rosen; Colleen Fagan; Timmie Mandish; Jeff McLaughlin; Steven Montague  
Cc: Jeffrey Fealko; Craig Schellsmidt  
Subject: CC-44 Change Request Form 002

All,

[Quoted text hidden]

---

Allen Childs <AllenChilds@ctuir.org>

Wed, Jan 22, 2014 at 9:01 AM

To: "Hovde, Jay" <jhovde@usbr.gov>, Darrell Dyke <DDyke@usbr.gov>, Mary Rosen <maryrosen.uswcd@gmail.com>, Colleen Fagan <colleen.e.fagan@state.or.us>, Timmie Mandish <tamandish@bpa.gov>, Jeff McLaughlin <jmclaughlin@usbr.gov>, Steven Montague <Smontague@usbr.gov>  
Cc: Jeffrey Fealko <jfealko@usbr.gov>, Craig Schellsmidt <unionswcd@hotmail.com>

I support the change ( a day late). Allen



Allen Childs

CTUIR Grande Ronde Fish Habitat Project Leader

Phone/fax: (541) 429-7940

Cell Phone: (541) 969-3142

Ag Service Center, Rm 2

10507 North McAlister Rd

Island City, OR 97850

From: Hovde, Jay [mailto:jhovde@usbr.gov]

Sent: Friday, January 17, 2014 4:05 PM

To: Darrell Dyke; Allen Childs; Mary Rosen; Colleen Fagan; Timmie Mandish; Jeff McLaughlin; Steven Montague

Cc: Jeffrey Fealko; Craig Schellsmidt

Subject: CC-44 Change Request Form 002

All,

[Quoted text hidden]

The opinions expressed by the author are his or her own and are not necessarily those of the Confederated Tribes of the Umatilla Indian Reservation. The information, contents and attachments in this email are Confidential and Private.

## Catherine Creek – River Mile 44 Phase II Habitat Improvement Project Change Request Form

*[This form is divided into three sections. Section 1 is intended for use by the individual submitting the change request. Section 2 is intended for use by the Project Manager to document/communicate their initial impact analysis of the requested change. Section 3 is intended for use by the Change Control Board (CCB) to document their final decision regarding the requested change.]*

| <b>1.) Requestor - GENERAL INFORMATION</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                      |                                                                             |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------|
| CR#                                        | <i>[CR002]</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                      |                                                                             |
| Type of CR                                 | <input type="checkbox"/> Improvement or Enhancement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> Fundamental Flaw |                                                                             |
| Project/Program/Initiative                 | <i>CC-44 Phase II Habitat Enhancement</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                      |                                                                             |
| Requestor Name/Organization                | <i>Jay Hovde-BOR</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                      |                                                                             |
| Date Submitted                             | <i>1/17/2014</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                      |                                                                             |
| Date Required                              | <i>1/21/2014</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                      |                                                                             |
| Priority                                   | <input type="checkbox"/> Low                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> Medium                      | <input checked="" type="checkbox"/> High <input type="checkbox"/> Mandatory |
| Description of Request                     | <i>I am requesting consideration for removal of Side Channel 1 from the upper reach habitat enhancement.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                      |                                                                             |
| Reason for Change                          | <i>There are several issues associated with the side channel and crossings being requested by the landowner. The two proposed hardened crossings will be extremely difficult to permit due to fish passage criteria and the proposed bridge will require a variance in order to install the structure at an elevation that does not require significant floodplain fill. Other crossing alternatives have been considered but were ruled out due to significant cost or increased risk to existing infrastructure. The channel in its current configuration provides limited habitat benefit due to limited activation and its location in an active cattle operation. Due to reductions in flow and size the side channel will not meet the one of the objectives of providing flow relief under the landowners existing bridge over Catherine Creek.</i> |                                                      |                                                                             |
| Other Projects Impacted                    | <i>No other projects will be impacted by this change.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                      |                                                                             |
| Assumptions and Notes                      | <i>Removal of SC1 will ensure designs will be completed on time and will eliminate the need for lengthy negotiations regarding potential variances.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                      |                                                                             |
| Comments                                   | <i>This change will not impact Phases III and IV of this project.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                      |                                                                             |
| Attachments or References                  | <input type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input checked="" type="checkbox"/> No               |                                                                             |
|                                            | <b>Link:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                      |                                                                             |
| Requestor's Signature                      | <i>Jay Hovde</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Date Signed                                          | <i>1/17/2014</i>                                                            |

| <b>2.) CCB Chair - INITIAL ANALYSIS</b> |                                                                                                                                     |                                                                      |                  |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------|
| Hour Impact                             | <i>N/A</i>                                                                                                                          | <i>[Enter the estimated hour impact of the requested change]</i>     |                  |
| Duration Impact                         | <i>N/A</i>                                                                                                                          | <i>[Enter the estimated duration impact of the requested change]</i> |                  |
| Schedule Impact                         | <i>[WBS]</i>                                                                                                                        | <i>This change will help ensure project remains on schedule.</i>     |                  |
| Cost Impact                             | <i>[Cost]</i>                                                                                                                       | <i>This will reduce project design and construction costs.</i>       |                  |
| Comments                                |                                                                                                                                     |                                                                      |                  |
| Recommendations                         | <i>This change is recommended for approval due to the cost/benefit and schedule implications if the SC1 remains in the project.</i> |                                                                      |                  |
| CCB Chair                               | <i>Jay Hovde</i>                                                                                                                    | Date Signed                                                          | <i>1/17/2014</i> |

| <b>3.) CHANGE CONTROL BOARD – DECISION</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                              |                                                                      |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Decision</b>                            | <input type="checkbox"/> Approved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> Approved with Conditions | <input type="checkbox"/> Rejected <input type="checkbox"/> More Info |
| <b>Decision Date</b>                       | 1/17/2014                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                              |                                                                      |
| <b>Decision Explanation</b>                | <p><i>The CCB represented by Jay Hovde, Steve Montague, Timmie Mandish, Darrell Dyke, Colleen Fagan, Allen Childs, Mary Rosen, and Jeff Fealko met via conference call January 17<sup>th</sup>. During the call the history and current issues surrounding Side Channel 1 were discussed in detail. Items of concern were the potential permitting implications (documented in email from ICF, January 14, 2014), cost, engineering risk and schedule. It was decided that due to the concerns outlined above SC1 should be removed from the Phase II Habitat Enhancement Scope. It was discussed that there may be future opportunities for side channel creation further upstream and there will be considerable side channel habitat developed in future phases.</i></p> |                                                              |                                                                      |
| <b>Conditions</b>                          | <p><i>It was requested that the built up disposal area adjacent to the landowners barns remain as part of the project.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                              |                                                                      |
| <b>CCB Chair's Signature</b>               | Jay Hovde                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Date Signed</b>                                           | 1/17/2014                                                            |

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| Date       | Time     | Type   | From                           | To                             | By                      | Archive                  |
|------------|----------|--------|--------------------------------|--------------------------------|-------------------------|--------------------------|
| 12/7/2012  | 8:07 AM  | Status |                                | Draft                          | Mark Johnson            |                          |
| 2/28/2013  | 8:26 AM  | Status | Draft                          | ISRP - Pending First Review    | Mark Johnson            | <a href="#">Download</a> |
| 6/11/2013  | 9:32 AM  | Status | ISRP - Pending First Review    | ISRP - Pending Response        | Dal Marsters (Inactive) |                          |
| 7/8/2013   | 5:15 PM  | Status | ISRP - Pending Response        | ISRP - Pending Final Review    | Mark Johnson            | <a href="#">Download</a> |
| 9/27/2013  | 11:07 AM | Status | ISRP - Pending Final Review    | Pending Council Recommendation | Dal Marsters (Inactive) |                          |
| 11/26/2013 | 5:00 PM  | Status | Pending Council Recommendation | Pending BPA Response           | Mark Fritsch            |                          |

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Proposal Number: GEOREV-2010-003-00  
 Proposal Status: Pending BPA Response  
 Review: [2013 Geographic Category Review](#)  
 Portfolio: [2013 Geographic Review](#)  
 Type: Existing Project: [2010-003-00](#)  
 Primary Contact: Mark Johnson  
 Created: 12/7/2012 by Mark Johnson  
 Proponent Organizations: Nez Perce Tribe

Project Title: Lower South Fork Clearwater River Watershed Restoration

Proposal Short Description: This project's goal is to restore the Lower South Fork Clearwater River (LSFC) aquatic ecosystems so that the habitat within these watersheds no longer limits recovery of the ESA Threatened S.F. Clearwater Steelhead population. As an ongoing partnership with the Nez Perce-Clearwater National Forests (NPCNF), the Nez Perce Tribe (NPT) proposes to implement habitat improvement projects to address the primary limiting factors that will increase the productivity and viability of the LSFC.

Proposal Executive Summary: The Lower South Fork Clearwater River project area (LSFC) lies within the Nez Perce Tribe (NPT) ceded territory of 1855 and within the Nez Perce-Clearwater National Forests (NPCNF). The project area includes approximately 301,000 acres, and is located 12 miles southeast of Grangeville, Idaho. The watershed is important to several fish species including Snake River DPS Steelhead (*Oncorhynchus mykiss*)- ESA Threatened and Designated Critical Habitat, Snake River Spring/Summer Chinook (*Oncorhynchus tshawytscha*), Bull Trout (*Salvelinus confluentus*)- ESA Threatened and Designated Critical Habitat, Westslope Cutthroat Trout (*Oncorhynchus clarki lewisi*), Rainbow Trout (*Oncorhynchus mykiss*), and Pacific Lamprey (*Entosphenus tridentatus*).

The LSFC watershed project was created in 2011 from the merger of two previously ongoing Bonneville Power Administration (BPA) and Nez Perce Tribe (NPT) restoration projects, #1996-077-05, Meadow Creek Watershed Restoration and #2000-036-00, Mill Creek Watershed Restoration, and includes an expansion of the project area to encompass all of the NPCNF lands in the lower South Fork Clearwater Basin from the National Forest boundary in the west to the Newsome and Crooked River watersheds in the east. Restoration work in the LSFC started in 1996 and is a cooperative effort between the U.S. Forest

Service and the Nez Perce Tribe under the Nez Perce Tribe/Nez Perce-Clearwater National Forests (NPCNF) Watershed Restoration Partnership.

Several management activities have degraded the aquatic ecosystem within the LSFC; these include road construction, stream crossings, timber harvest, noxious weed infestations, livestock grazing and mining. These activities have degraded the stream and riparian processes that are important to the fish that use them. This project's goal is to restore the Lower South Fork Clearwater River (LSFC) aquatic ecosystems so that the habitat within these watersheds no longer limits recovery of the ESA Threatened S.F. Clearwater Steelhead population.

The LSFC project directly addresses Habitat Strategy 1, protect and improve tributary habitat based on biological needs and prioritized actions, identified in the 2008 Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp). RPA 35 of the 2008 FCRPS 2008 BiOp calls for implementation of tributary habitat projects in 2010-2018 to achieve a 14 % habitat quality improvement for the LSFC Steelhead population. Limiting factors were updated during the 2012 FCPRS BiOp Expert Panel process using NOAA's newly developed standardized terminology. The expert panel included staff from the NPT Department of Fisheries Resource Management (DFRM) Watershed Division, Nez Perce-Clearwater National Forests (NPCNF), and Idaho Fish and Game. Based on the limiting factors analysis the Watershed Division worked with the NPCNF to identify priority restoration projects for inclusion into this proposal for 2014-2018 that address these factors. The results of this exercise identified the following as limiting factors for the project area: increased sediment quantity, riparian condition, anthropogenic barriers, temperature, large woody debris recruitment, and in-stream structural complexity.

The NPT proposes to address the primary factors limiting to abundance and productivity of the focal species. The Tribe and NPCNF have prioritized restoration projects to address these limiting factors based on the Clearwater Subbasin Plan (NPCC 2005), South Fork Clearwater River Landscape Assessment (USFS 1998), and the Clearwater Expert Panel process (2012).

Based on the identified limiting factors the objectives of this proposal include:

- OBJ-1: Increase anadromous fish productivity and production, and life stage specific survival through habitat improvement.
- OBJ-2: Reduce in-stream sediment to less than 20% cobble embeddedness.
- OBJ-3: Reduce water temperatures to zero days exceeding 16°C.
- OBJ-4: Reduce number of artificially blocked streams so that zero barriers exist within the watershed.
- OBJ-5: Protect and restore riparian habitats to achieve 75% riparian plant community.
- OBJ-6: Reduce the impact of the transportation system to a target road density of 1.0 miles per square mile or less
- OBJ-7: Reduce negative impacts of livestock grazing through installation and maintenance of exclusion fencing.
- OBJ-8: Improve aquatic habitat diversity and complexity through addition of pools and LWD as well as increased sinuosity.
- OBJ-9: Reduce the extent and density of noxious weeds to a level of less than 5% of the area that is disturbed.

Deliverables that will be accomplished through the implementation of habitat improvement projects that address limiting factors include:

1. Install 7 fish passage structures
2. Decommission 50 miles of existing roads
3. Improve 10.3 miles of existing roads
4. Plant 10,000 riparian plants
5. Improve and restore 1,800 feet of Leggett Creek
6. Invasive weed treatment on 200 acres
7. Maintain 12 miles of exclusion fencing
8. Complete inventory and assessment on over 300 road/stream crossings

The deliverables and their tie to the objectives are explained in detail in the Problem Statement and in the Objectives and Deliverables sections.

Monitoring of restoration efforts is a key component to determining the success of each project as well as feeding the adaptive management response loop to ensure the most successful techniques are being used during implementation. Implementation and compliance monitoring will occur on each project. Action effectiveness monitoring will be applied to projects through the "Action Effectiveness Monitoring of Tributary Habitat Improvement: a programmatic approach for the Columbia Basin Fish and Wildlife Program" (Roni et al. 2013). This project conducts focused status and trend monitoring aimed at the limiting factors and a comprehensive status and trend monitoring through the CHaMP protocol is slated to be carried out within the South Fork Clearwater River starting in 2014.

An important goal of this project is the timely reporting of science-based data. The Nez Perce Tribe Department of Fisheries Resource Management (DFRM) has the equipment infrastructure necessary to ensure that this will be achieved. DFRM annual reports, metadata, and performance measure data will be available on the new DFRM website at <http://www.nptfisheries.org>. Appropriate components of program data and results will also be provided to StreamNet, Great Northern Landscape Conservation Cooperative (GNLCC) Regional Stream Temperature Database and Model, and the Nez Perce Tribe Watershed Division's geospatial, web-accessible database at [http://imsland.nezperce.org/DFRMWatershed/nexviewer\\_flex.html](http://imsland.nezperce.org/DFRMWatershed/nexviewer_flex.html).

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Purpose: Habitat  
 Emphasis: Restoration/Protection  
 Species Benefit: Anadromous: 100.0% Resident: 0.0% Wildlife: 0.0%  
 Supports 2009 NPCC Program: Yes  
 Subbasin Plan: Clearwater  
 Fish Accords: None  
 Biological Opinions:
 

- FCRPS 2008 ([RPA 34.1](#), [RPA 35.1](#), RPA 34, RPA 35)

## [Back To Top](#) [Contacts](#)

Contacts:
 

- David Kaplowe (Project Manager)
- Mark Johnson (Project Lead)
- Heidi McRoberts (Supervisor)
- Emmitt Taylor (Supervisor)
- Brenda Aguirre (Env. Compliance Lead)
- Arleen Henry

## [Back To Top](#) [Project Significance & Problem Statement](#)

### Project Significance to Regional Programs:

This project proposes to implement actions (for 2014-2018) to specifically address factors that limit the abundance and productivity of the South Fork Clearwater River steelhead and spring Chinook salmon populations. The actions and limiting factors are consistent with those outlined in the documents listed below. The proposed actions also benefit secondary focal species in the subbasin, particularly westslope cutthroat trout, and bull trout.

#### 2008 FCRPS Biological Opinion (NMFS 2008)-

RPA Action 35 of the 2008 FCRPS Biological Opinion (NMFS 2008) calls for the Action Agencies to provide funding and/or technical assistance to implement habitat projects to achieve population specific habitat quality improvements by 2018. Consistent with the requirements outlined in RPA Action 35, the Action Agencies committed to implement tributary habitat projects that improve habitat function quality by addressing limiting factors and threats for numerous Chinook and steelhead populations, including SF Clearwater River steelhead. These habitat improvements are expected to improve the egg-smolt survival of targeted populations. In the FCRPS BiOp under RPA 35 Table 5 for Snake River Steelhead in the Clearwater River, a 14% Habitat Quality Improvement is required to be achieved by 2018 for the SF Clearwater River population. In the FCRPS BA under Table 4-b funding needs were identified for critical watersheds in the parent LSFC projects, Meadow Creek and Mill Creek (\$681,000) to address primary limiting factors to include impaired channel complexity, elevated temperatures, passage barriers, and excessive sedimentation. This project, in collaboration with the NPT DFRM Watershed Division American/Crooked Rivers, Newsome Creek, and Red River projects all collectively work together towards meeting the required 14% habitat improvement.

The Watershed Division and this project has worked closely with BPA since 2006 through the expert panel process in updating limiting factors, identifying restoration projects to address limiting factors, and estimating the amount of habitat improvement from restoration projects. In June 2010, the Action Agencies (BPA, BOR, ACOE) released the FCRPS 2010-2013 Implementation Plan (NMFS 2009). This plan summarizes the significant actions that will be implemented by the Action Agencies from 2010 through 2013 to protect ESA-listed salmon and steelhead affected by the operation of the FCRPS. Habitat actions under the BiOp are targeted at biological needs, addressing priority populations and limiting factors to protect and improve tributary habitat in an effort to increase fish survival. The 'Highlighted Actions' in the plan on page 7 reference the expanded level of effort to address limiting factors for three populations including the South Fork Clearwater populations of steelhead. Under appendix A, Summer/Winter Steelhead Tributary Habitat Projects, the SF Clearwater River population is listed with limiting factors to be addressed, summary of planned metrics, and projects associated with metrics to include projects the Meadow Creek Watershed Restoration 1996-077-05 and Mill Creek Watershed Restoration 2002-072-00, the parent projects of this project.

Limiting factors were updated during the 2012 FCRPS BiOp Expert Panel process using NOAA's newly developed standardized terminology. The expert panel included staff from the NPT Department of Fisheries Resource Management (DFRM) Watershed Division, Nez Perce-Clearwater National Forests (NPCNF), and Idaho Fish and Game. Based on the

limiting factors analysis the Watershed Division worked with the NPCNF to identify priority restoration projects for inclusion into this proposal for 2013-2018 that address these factors.

#### 2003 CLEARWATER SUBBASIN MANAGEMENT PLAN (NPCC 2005)-

The Clearwater Subbasin Management Plan identified problems, objectives, and strategies for biological, environmental, and socioeconomic components within the Subbasin. It also identified and prioritized restoration issues for specific designated areas called Project Management Units (PMU).

The most widely distributed issues of concern for fish and wildlife restoration within the South Fork Clearwater steelhead population area are water temperature, exotic species (aquatic), vegetative structure and roads, with each of these issues identified in at least 5 of the 6 PMUs within the LSFC project area. Road density and water temperature concerns are most commonly considered high and moderate priority issues, respectively throughout the South Fork Clearwater steelhead population area. Grazing impacts, mining impacts, and instream habitat condition are of concern in at least half of the PMU's within the South Fork Clearwater steelhead population area, with moderate to high priorities identified for addressing these issues where they occur. Issues of concern with more limited spatial influence (occur in only 1-2 PMU's within the South Fork Clearwater steelhead population area) include surface erosion, riparian/wetland restoration needs. Restoration of riparian and wetland communities, although limited in spatial distribution, are considered to be a high priority concern within PMU FD-3. (NPCC 2005, pp 158-161).

As stated in the subbasin plan it is reasonable to assume that anadromous production/productivity would improve given an improvement in the condition of the habitat, and that these improvements can only occur with a reduction in impacts of limiting factors. The use of the general and aquatic limiting factors shown above in the assessment provides us with an initial starting point for the identification and treatment of problems affecting anadromous populations throughout the Clearwater. Treatments will include efforts designed to provide immediate benefits, as well as longer term future benefits. Benefits for westslope cutthroat and bull trout populations will also require an improvement in habitat conditions, in which both species are limited by the current condition of their habitat.

The five highest priority limiting factors within the Clearwater River Subbasin include: in-stream temperature, sedimentation, loss/disturbance or riparian habitats, change in vegetative structure, and alteration of environmental process. The components of this proposal address all of the identified five priority limiting factors.

#### SOUTH FORK CLEARWATER RIVER LANDSCAPE ASSESSMENT (USFS 1998) -

The inherent aquatic species potential of the South Fork Clearwater Subbasin is high, given the greater amount of low relief uplands and associated high potential, in-stream habitat. This assessment is principally a reinforcement of those conclusions about species potential and aquatic restoration objectives. This assessment attempted to integrate functional objectives into an integrated recommendation on subbasin management. The historic disturbance pattern has been used as a template for these recommendations, and consequently the functional objectives are consistent. The recommendations presented here include both the integrated and aquatic resource specific recommendations:

- In areas where there has been large amounts of human activity, the pattern of human disturbance in the subbasin should be altered to more closely align with the pattern of historic disturbance (i.e. less frequent, wider extent disturbances in the upper subbasin and more frequent, maintenance type disturbances in the lower subbasin).
- Active rehabilitation of aquatic resource function, particularly the major tributaries of the lower basin (Meadow Creek, Mill Creek, and parts of Johns and Tenmile Creeks) and a reduction in the effects of the existing road system are also recommended to conserve the aquatic species in the subbasin.
- There are large areas of low development in the subbasin, particularly in the southern portion (Johns, Wing, Twentymile, and Tenmile Creeks). These areas are strongholds for steelhead, bull trout and westslope cutthroat trout. In these areas, conservation of existing aquatic function is critical to the conservation of these aquatic species.
- In areas of the subbasin where the vegetation themes are emphasized more than the aquatic in the integrated area theme recommendation, restoration of aquatic function also needs to occur.
- Partnerships are an essential ingredient in the successful restoration of aquatic resources in the subbasin. Cooperative work across the range of agencies, governments, industries, and individuals will be needed. The resources necessary to establish or strengthen these partnerships should be identified and focused on this effort.

#### DRAFT NOAA SALMON AND STEELHEAD RECOVERY PLAN FOR THE STATE OF IDAHO (NMFS 2011)-

The South Fork Clearwater River is one of five extant populations within the Clearwater River MPG and Snake River Steelhead DPS and is classified as B-run. The Clearwater River MPG currently does not meet MPG-level viability criteria and at least four of the five populations need to be at viable status to satisfy these criteria. The ICTRT classified the South Fork Clearwater River population as an "intermediate" population based on historical habitat potential with a Branched Discontinuous B type spawning complex. This population is the only "intermediate" sized B-run population in the MPG and its achievement of viable status would satisfy this population size-class criterion. Results from the generic assessment indicate the population is at high abundance/productivity risk. Current spawning is widely distributed throughout the population and has been documented in all of the larger tributaries to the South Fork. The South Fork Clearwater steelhead population has four minor spawning areas in the LSFC project area (Meadow, Mill, Johns, and Tenmile Creeks); they are all currently occupied (based on agency defined distribution). The South Fork Clearwater River steelhead population does not currently meet population level viability criteria because abundance/productivity risk is too high. Without survival rate increases that lead to increases in abundance and productivity, the population cannot achieve viable status.

#### 2009 FISH AND WILDLIFE PROGRAM (NPCC 2009-09)-

Basin wide habitat work is intended to be consistent with the Program's biological objectives and also with measures contained in subbasin plans. The most common habitat protection and improvement activities implemented under the Program consist of: removal of passage barriers, riparian habitat protections and improvements (fencing, vegetation planting, erosion control, best land management practices, easements, and other (acquisitions) largely intended to improve water quality, especially with regard to temperature and sediments, and floodplain reconnections, passive and active improvements in channel structure and geomorphology and the re-establishment of natural river processes.

#### 2002 U.S. FISH AND WILDLIFE SERVICE BULL TROUT (SALVELINUS CONFLUENTUS) DRAFT RECOVERY PLAN (USFWS 2002)-

|                              |             |           |             |           |           |
|------------------------------|-------------|-----------|-------------|-----------|-----------|
| FY2011                       | \$873,341   | \$873,341 | \$1,541,705 | \$770,852 | \$297,707 |
| BiOp FCRPS 2008 (non-Accord) |             | \$873,341 | \$1,541,705 | \$770,852 | \$297,707 |
| FY2012                       | \$1,746,682 | \$873,341 | \$0         | \$770,852 | \$674,099 |
| BiOp FCRPS 2008 (non-Accord) |             | \$873,341 | \$0         | \$770,852 | \$674,099 |
| FY2013                       |             | \$799,000 | \$725,842   | \$725,842 | \$968,994 |
| BiOp FCRPS 2008 (non-Accord) |             | \$799,000 | \$725,842   | \$725,842 | \$968,994 |
| FY2014                       | \$856,341   | \$790,265 | \$790,265   | \$790,265 | \$610,454 |
| BiOp FCRPS 2008 (non-Accord) |             | \$790,265 | \$790,265   | \$790,265 | \$610,454 |
| FY2015                       | \$790,265   | \$790,265 | \$790,265   | \$790,265 | \$419,922 |
| BiOp FCRPS 2008 (non-Accord) |             | \$790,265 | \$790,265   | \$790,265 | \$419,922 |

\* Expenditures data includes accruals and are based on data through 31-Jan-2015

**Project Cost Share:**

- [FY2014](#) 38 %
- [FY2013](#) 20 %
- [FY2012](#) 23 %
- [FY2011](#) 18 %

| Fiscal Year | Cost Share Partner       | Total Proposed Contribution | Total Confirmed Contribution |
|-------------|--------------------------|-----------------------------|------------------------------|
| FY2013      | US Forest Service (USFS) |                             | \$197,603                    |
| FY2014      | US Forest Service (USFS) |                             | \$492,297                    |

**Explanation of Recent Financial Performance:**

The two BPA parent projects of the current LSFC project originated in 1996 and at that time the combined funding was approximately \$245,000 annually. Since that time the NPT has demonstrated the continued ability and expertise to manage watershed restoration projects and achieve the results desired by BPA and this has been recognized by increased BiOp funding levels from BPA up to the current amount of \$873,341 annually for the expanded LSFC project. Financial efficiencies in the contract years 2004 through 2010 have generated returns to BPA of up to 15% of the annual funding amounts while still completing essentially all of the contracted Work Elements. These efficiencies have resulted primarily from savings in anticipated labor costs and several contract bids coming in less than the engineering estimate for the project.

The current LSFC contract is a two year contract which started on March 1, 2011 and ends on February 28, 2013 at a total contract amount of \$1,746,682. Expenditures for this period are expected to be less than the contract amount due to a request by BPA to reduce spending in FY12 and FY13 due to their overall Fish and Wildlife Program budget shortfall. Approximately \$180,000 is expected to be returned to BPA at the end of the contract in February 2013. This approximate 10% savings will be accomplished while completing essentially all of the critical contracted Work Elements. The proposed budget for the next contract period (March 1, 2013 to February 1, 2014) is \$799,000 which represents an 8.5% decrease from the previous contract amount at the request of BPA to reduce spending for FY13.

Cost share for the projects comes primarily from the United States Forest Service (USFS). In the last proposal period (2007 to present) they have contributed an average of \$260,000 (40% match) annually to the project. In the past two years these amounts have been less (18 - 23 % match) due to internal USFS budget reductions. It is anticipated the USFS cost share will remain at this level through the next proposal period as the USFS has recently signed a Memorandum of Understanding with BPA to provide at least 20% matching funds annually on BPA projects being implemented on USFS managed lands.

**Explanation of Financial History:**

None

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|                                         |                                |
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| <a href="#">Annual Progress Reports</a> | <a href="#">Status Reports</a> |
| <b>Expected (since FY2004):</b> 4       | <b>Completed:</b> 16           |