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**UNITED STATES DISTRICT COURT  
DISTRICT OF OREGON**

NATIONAL WILDLIFE  
FEDERATION, *et al.*,

Plaintiffs,

v.

NATIONAL MARINE FISHERIES  
SERVICE, *et al.*,

Defendants.

Case No. CV 01-00640-SI

DECLARATION OF BILL TWEIT  
SUBMITTED IN SUPPORT OF  
THE THREE STATES' CROSS-  
MOTION FOR SUMMARY  
JUDGMENT

1 BILL TWEIT declares as follows:

2 1. I am over the age of eighteen (18) and competent to testify to the matters  
3 contained herein. This declaration is based on my personal knowledge and is made in support  
4 of the Three States' Memorandum In Support Of Cross-Motion for Summary Judgment.

5 2. I graduated from the Evergreen State College in 1976 with a Bachelors degree  
6 in Ecology and Field Biology. My first job after graduation was as a Biological Technician for  
7 the U.S. Fish and Wildlife Service from 1977-1979. I worked for the Nisqually Indian Tribe as  
8 a Fisheries Biologist from 1979-1988. I accepted a position with the Washington Department  
9 of Fisheries, now the Washington Department of Fish and Wildlife (WDFW) in 1988 as a  
10 Fisheries Biologist 3, my primary duties were a technical adviser to the Pacific Salmon  
11 Commission and management of Puget Sound commercial salmon fisheries. From 1988 to  
12 1999, I worked in several positions in the Fish Program of the Department; finally promoting  
13 to Program Manager level in 1997 with statewide responsibilities for assessing the status of  
14 chinook and coho populations. During these years, my professional focus included the status  
15 of chinook stocks of the upper Columbia and understanding the causes for their decline. In  
16 1999, I transferred from the Fish Program to the Intergovernmental Resource Management  
17 Program in the Directors office. I became the Columbia River Policy Lead, supervising five  
18 positions. Two of the positions were directly engaged in management of the Columbia River  
19 hydrosystem, one with a focus on the Federal Columbia River Power System (FCRPS) and  
20 another that participated in the Federal Energy Regulatory Commission (FERC) licensing  
21 procedures for five dams operated by Public Utility Districts in the mid-Columbia. The third  
22 position was the agency liaison to the Northwest Power and Conservation Council. Two other  
23 positions worked on harvest management of the Columbia River commercial and recreational  
24 salmon fisheries. In this position, I became very familiar with the operation of the FCRPS and  
25 with FERC-licensed dams in the mid-Columbia, as well as the Northwest Power Act and the  
26

1 Endangered Species Act. From 1999 to the present, I have frequently provided senior level  
 2 policy representation for WDFW as the state representative to the Regional Implementation  
 3 Team (no longer extant) for the FCRPS, as well as on the Policy Committees and Coordinating  
 4 Committees for the five mid-Columbia PUD dams. At present, I represent the state of  
 5 Washington in the Columbia River Treaty forum as a member of the Sovereign Technical  
 6 Team, and establish agency policy for our role in the Columbia River Water Management  
 7 Program, overseen by the Washington Department of Ecology.

8  
 9 2. In 2005, my responsibilities were broadened outside of the Columbia Basin to  
 10 include representation on the North Pacific Fishery Management Council, and in 2011, I also  
 11 became responsible for agency policy on invasive species prevention and management. Due to  
 12 extensive internal reorganization, my position no longer directly supervises any positions; I  
 13 continue to provide policy guidance and oversight to all agency staff working in mainstem  
 14 Columbia hydrosystem and flow positions, as well as invasive species. My position title  
 15 changed to Special Assistant to the Director in 2013.

### 16 **Introduction**

17 3. WDFW is charged by statute, specifically RCW 77.04.012, with preserving,  
 18 protecting, perpetuating, and managing the fish and wildlife of the state. The agency meets  
 19 this mandate in part by implementing specific state laws protecting fish and wildlife, by  
 20 conducting scientific research related to the protection and management of fish and wildlife,  
 21 and by providing technical assistance to federal, state, and local government agencies and  
 22 implementing regulatory programs that affect fish and wildlife habitat.

23 4. In 1999, Washington State adopted a salmon recovery policy: Statewide  
 24 Strategy to Recover Salmon<sup>1</sup>. It established the fundamentals of the state approach to salmon  
 25 recovery: addressing all sources of mortality (the “all-H approach”); establishing and relying

26 <sup>1</sup> <http://www.rco.wa.gov/documents/gсро/1999StatewideStrategyRecoverSalmon.pdf>.

1 on a collaborative, bottom-up approach to recovery at the watershed level led by regional  
 2 salmon recovery groups and tribes; and requiring a monitoring and adaptive management  
 3 component for each recovery plan. For hydropower, the state goal is “Achieve no net impact  
 4 for each salmonid species affected by hydropower projects”. The goals and associated  
 5 objectives in the statewide strategy, along with the subsequent guidance in the 2006 update:  
 6 The “Washington Way,”<sup>2</sup> guides WDFW in our participation in salmon recovery efforts  
 7 throughout the region, including the FCRPS. The State of Washington produces an annual  
 8 report on progress in achieving the recovery objectives established in the regional recovery  
 9 plans; the 2014 report<sup>3</sup> was released recently. Even though it has comparatively little material  
 10 on mortalities associated with the hydrosystem, it provides considerable information on the  
 11 other mortality factors: hatchery, harvest and habitat. The comparisons between regions are  
 12 thought provoking. Two Puget Sound ESUs, chinook and steelhead, that have almost no  
 13 interaction with hydropower facilities, are faring at least as poorly as upper Columbia spring  
 14 chinook, an ESU that passes through a minimum of six dams. The same is apparently true for  
 15 Fraser River salmon. From our perspective, this means that a multi-faceted risk analysis and  
 16 mitigation approach, similar to the all-H approach in the Columbia River Basin, is crucial to  
 17 any response to ESA listed salmon. This is why we have been focused on habitat restoration as  
 18 an important and effective tool.

19           5. Under Washington state law, and as a matter of agency policy, WDFW fishery  
 20 biologists are tasked with monitoring and assessing status of fish populations, identifying  
 21 critical habitat and analyzing limiting factors that impede recovery of salmon and steelhead  
 22 populations throughout the state, including populations outside the Columbia Basin, i.e., Puget  
 23 Sound and Washington Coast. WDFW utilizes this scientific expertise to provide input  
 24 regarding regulatory decisions that affect salmon, development of comprehensive fish  
 25

26 <sup>2</sup> <http://www.rco.wa.gov/documents/gsro/2006StatewideStrategy.pdf>.

<sup>3</sup> <http://www.stateofsalmon.wa.gov>.

1 management and recovery plans, and state conservation policies. Much of the data in the 2014  
2 State of the Salmon in Watersheds report was generated by WDFW biologists.

3 6. WDFW biologists have a long history of participation in a number of technical  
4 forums associated with the monitoring of salmon and steelhead passage and survival in the  
5 mainstem Columbia River. WDFW biologists have participated in the Technical Management  
6 Team since its inception, and WDFW senior policy representatives are active participants in  
7 the Regional Implementation Oversight Group and its predecessor, the Regional  
8 Implementation Team. WDFW biologists contribute to the other regional forums for the  
9 FCRPS, such as the System Configuration Team, as necessary. WDFW is equally engaged in  
10 the design, operation and management of passage facilities at the five mid-Columbia PUD  
11 dams operating under FERC licenses. WDFW staff have been instrumental in designing and  
12 analyzing the field tests of survival through each dam and project area, to insure that each PUD  
13 dam is meeting the performance standards established in their FERC licenses.

14 7. WDFW has concentrated its scientific efforts on understanding the freshwater  
15 habitat dynamics of the salmon life history cycle, beginning much of that work in the early  
16 1970s. The initial upstream/downstream research projects that were established by WDFW  
17 almost four decades ago were part of the model for the Intensively Monitored Watersheds  
18 (IMW) approach that has been adopted for monitoring the results of the habitat actions in the  
19 2014 BiOp. In addition to our own technical expertise, we rely upon on the monitoring efforts  
20 and scientific analyses produced by the scientists at the Fish Passage Center (FPC) as well as  
21 those at the Northwest Fishery Science Center (NWFSC), together with the research synthesis  
22 and peer reviews produced by the Independent Scientific Advisory Board (ISAB) of the  
23 Northwest Power and Conservation Council. WDFW supported the creation of the FPC under  
24 the first Fish and Wildlife Program produced by the Northwest Power and Conservation  
25 Council. The FPC, under the guidance of the Council's Fish Passage Oversight Board and  
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1 with peer review by the ISAB, is an important means for the states and tribes to obtain  
2 monitoring and increased understanding of mainstem passage issues. WDFW utilizes FPC  
3 advice, as well as the findings of the NWFSC, and ISAB in connection with the policies and  
4 management prescriptions that we advocate in FCRPS and FERC forums. Our participation in  
5 the Collaborative Process and our assessment of the current BiOp are based on our  
6 understanding and synthesis of the science from these bodies. When their analyses or advice  
7 diverge, as they sometimes do (because our scientific knowledge of fish passage is continually  
8 evolving), we formulate our policies based on our lengthy experience with the mainstem and  
9 our comparative experience with both FERC and FCRPS dams.

#### 10 **Remand Process**

11 8. WDFW was a full participant in the Collaborative Process utilized by NOAA  
12 during 2005-07 to develop the biological frame work for the 2008 FCRPS BiOp. WDFW was  
13 also a key contributor to development of the monitoring and adaptive management plan that  
14 was included in the 2010 supplemental FCRPS BiOp. WDFW continues to participate in the  
15 policy and technical forums of the FCRPS BiOp Regional Implementation Oversight Group.

16 9. The Collaborative Process was convened in 2005 to include participation from  
17 technical and policy representatives of the state, federal, and tribal sovereigns of the Columbia  
18 River basin as well as the Action Agencies. There were several Work Groups established to  
19 develop a credible framework for the BiOp including: a Policy Work Group, Recovery Goals  
20 and Gaps Work Group, Human Impacts/Framework Work Group, Habitat Work Group,  
21 Hatchery and Harvest Work Group, Hydro Actions Work Group, Passage Model Work Group,  
22 and a Performance Standards and RM&E Work Group. WDFW was active in all the Work  
23 Groups. The Action Agencies utilized the collective expertise in this process to develop the  
24 2007 Implementation Plan with a commitment to support a series of actions that would reduce  
25 the human related impacts to salmon and steelhead. NOAA utilized input from the technical  
26

1 experts in the process to analyze this suite of actions in a comprehensive analysis and the  
2 expected response of individual populations in a quantitative analysis.

3  
4 10. In 2011, the U.S. District Court remanded the BiOp to NOAA to address the  
5 sufficiency of habitat mitigation actions beyond 2013. In response, the Action Agencies have  
6 expanded the Implementation Plan to describe specific tributary and estuary habitat action  
7 through 2018. I am familiar with Washington State's involvement in that effort.

8  
9 11. Since 2011, the Action Agencies with support from NOAA, tribes, states  
10 (including Washington State), and other partners have engaged in substantial research and  
11 extensive planning to develop the extended habitat actions in the 2014 Implementation through  
12 2018. The resulting habitat actions, review processes, adaptive management, and monitoring  
13 and evaluation strategies are clearly laid out in an extended Reasonable and Prudent  
14 Alternative Plan which covers implementation of 73 actions.

15  
16 12. WDFW has reviewed and considered the key elements of the 2014  
17 Implementation Plan and, although we were supportive of the process and the extensive list of  
18 habitat actions and monitoring programs in the 2008/2010 BiOps, we are still more pleased  
19 with the response of the Action Agencies to the remand. We are convinced that the 2014 BiOp  
20 builds from, and improves upon, the previous BiOp by use of additional information and added  
21 commitment by the Action Agencies. This BiOp, which includes habitat project commitments  
22 through 2018, reflects an increase in the certainty for critical habitat projects to occur and to  
23 attain the expected benefits to listed fish populations. Features in the 2014 Implementation  
24 Plan that compel us to support the 2014 BiOp as an improved product that increases certainty  
25 include:

- 26
- a. Utilizes expert scientific panels and regional partnerships to develop habitat actions to provide the most benefit to fish
  - b. Convenes expert panels to develop and review habitat actions
  - c. Commits to monitor survival improvements and adjust expected benefits as new information becomes available

- 1 d. Supplements habitat actions in watersheds where new information shows
- 2 the populations will fall short of expected benefits
- 3 e. Provides for replacement habitat actions if prescribed actions prove not
- 4 feasible
- 5 f. Re-convenes the Regional Expert panels in 2015 to re-evaluate progress
- 6 and commits to adjust (add) actions as necessary to meet the targeted
- 7 level of benefits
- 8 g. Full financial and process commitment to habitat actions through 2018
- 9 that is focused on meeting expected benefits to fish
- 10 h. Commitment to fully monitor fish population status and performance of
- 11 All-H BiOp actions
- 12 i. Commitment to adaptive management to re-align actions if they are not
- 13 meeting established performance
- 14 j. Commitment to respond with emergency actions (including additional
- 15 hydro actions) if Major Population Groups (MPG) experience a
- 16 significant reduction in abundance

17 In our view, the result is an improved, scientifically credible package that includes measurable  
18 performance standards and timelines that will track progress and adjust direction if necessary.

19 13. We are pleased that the 2014 BiOp not only extends the tributary habitat  
20 commitment to specific actions in all tributaries through 2018, but also adds supplemental  
21 habitat projects to benefit six primary populations that were not expected to meet targeted  
22 habitat quality improvement (HQI) levels with the original list of actions. The review process  
23 that lead to the investment in additional habitat actions in these tributaries (Catherine Creek,  
24 Grande Ronde, Yankee Fork, Entiat, Lochsa, S. Fork Clearwater), reflects the commitment to a  
25 review and adjustment process that will continue through 2018. We view this response as a  
26 solid indicator that the Action Agencies and NOAA are not just focused on implementing the  
current extended list of projects, but adding more projects as necessary to meet the  
improvement targets. In other words, the improvement is the target not today's list.

14, As an estuary restoration partner, we are also pleased with the list of over 40  
restoration projects in the lower Columbia estuary that are in various stages of implementation  
with several partners. Again, the Action Agencies and NOAA are relying upon scientific  
expertise and partnerships to identify projects and continue restoring shallow water habitat in

1 the estuary and evaluating fish survival benefits. The pace of implementation is picking up  
2 rapidly as a number of estuary projects are moving from feasibility into on the ground work.  
3 We are satisfied that the 2014 BiOp commitments provide reasonable certainty that over  
4 22,000 acres of estuary habitat will be restored by 2018. 2014 BiOp at 334-35. We are also  
5 satisfied that the Expert Regional Technical Group, convened by NOAA to assess projects for  
6 survival benefits to fish (SBUs), has laid the scientific basis for NOAA to conclude that the  
7 targeted SBUs will be reached and provide for the expected survival increases to juveniles  
8 during the estuary portion of their migration.

### 9 **Fish Population Status**

10 15. As described by NOAA in the 2014 Supplemental FCRPS BiOp, abundance of  
11 the vast majority of ESA-listed salmon and steelhead populations in the Columbia Basin have  
12 increased in recent years. Additionally, when incorporating the more recent return data to the  
13 base, extinction risk has also decreased for the vast majority of the populations. The new  
14 information, which extends the Northwest Fisheries Science Center data base period through  
15 2011-12, shows an increase in mean abundance for all Chinook populations and for 17 out of  
16 20 of the steelhead populations. 2014 BiOp at 79-82. Additionally, the new and most recent  
17 information shows reduced extinction risk for 16 of the 20 Chinook and for 15 of the 19 of the  
18 steelhead populations. 2014 BiOp at 84. Improved status of ESA listed populations is likely  
19 associated with human related life cycle survival increases that can provide for immediate  
20 short term benefits to anadromous fish, including hydro passage, harvest reductions, predation  
21 management, and removal of blockages to key tributary spawning areas. Another non-human  
22 controlled factor that has likely contributed to the increase in abundance and reduction in  
23 extinction risks is an increase in ocean survival for some populations due to a recent period of  
24 a highly productive ocean environment.  
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16. Regardless of how much of this increased abundance trend can be attributed to increased productivity in the marine environment, it is undeniable that the actions that have been implemented in the 2008 BiOp have contributed significantly to the overall life cycle survival increases in both the juvenile and adult stages and have been successful in giving these listed populations a boost in the short term. The boost in abundance of naturally produced populations will set the stage for maximizing the longer term benefits associated with improved productivity that are accomplished through the habitat and other RPA actions that have occurred and will continue to occur in the 2014 BiOp.

17. The current abundance of naturally produced populations in the Columbia Basin is certainly low compared to the historical pre-development levels, however, the changes to human-caused impacts to Columbia River fish in recent years is quite remarkable and the reverse in the trend and associated extinction risk during the past ten years represents impressive progress. It is not practical to assume that the complex life cycle factors that affect recovery of salmon and steelhead populations in a developed environment can be changed at a pace that increases abundance levels that reach recovery or healthy status in a few years. However, WDFW is encouraged that these recent years do demonstrate that key factors of decline are being addressed and the fish are responding progressively towards recovery. When we compare the current mostly positive population trends of Columbia River salmon and steelhead to the mostly negative trends of Puget Sound Chinook, it further supports our conclusion that the all-H actions underway in the Columbia River Basin are proving to hit the mark in terms of addressing the key factors that will ultimately result in the recovery of these fish populations.

18. We are aware of the ongoing debate about the potential effect of density dependent population dynamics on the interpretation of spawner:recruit statistics that are one index of the success of the BiOp actions and of recovery programs in general. Classical

1 fishery management theory is predicated on an understanding that density dependent effects  
2 increase as a population increases. Both the Ricker and the Beverton-Holt production curves  
3 reflect that relationship. We acknowledge that increases in all types of mortality sources can  
4 affect the population level at which density dependent effects can be discerned. The recent  
5 release of a report on density dependent effects on the salmon and steelhead populations in the  
6 Columbia basin<sup>4</sup> by the Independent Scientific Advisory Body of the Northwest Power and  
7 Conservation Council will contribute to our collective understanding of this population  
8 dynamic. The ISAB found unexpectedly strong indications of density dependence in most of  
9 the basin salmon and steelhead populations, and suggested this is due to habitat capacity being  
10 greatly diminished. WDFW has been particularly concerned about the effect of large amount  
11 of habitat loss in the estuary, as it is a critical and limiting habitat for all of the basin's  
12 anadromous populations. Consequently, WDFW advocated strongly throughout the  
13 Collaborative Process for increased emphasis on estuary restoration projects, as well as the  
14 importance of habitat restoration in tributaries throughout the Washington portion of the  
15 Columbia basin, and is an active partner in actual restoration work in both the estuary and in  
16 tributaries.

17 19. While we cannot dismiss the potential of hydrosystem related mortality as a  
18 factor in lowered spawner:recruit ratios, in our judgment there is stronger evidence that habitat  
19 loss is a primary cause for lower than expected spawner:recruit ratios for Washington  
20 populations of salmonids. Certainly from a risk management standpoint, given the large scale  
21 of habitat degradation and loss in both the estuary and freshwater portions of the basin and the  
22 significant progress in recent years at improving survival through the hydrosystem, WDFW  
23 supports prioritizing further habitat restoration both from a recovery and a risk reduction  
24 context. We expect that spawner:recruit ratios will improve over time as the longer-term  
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26 <sup>4</sup> <http://www.nwcouncil.org/fw/isab/isab2015-1>.

1 benefits of habitat restoration actions from this BiOp increase productivity. Additionally,  
2 further management of bird predation on juveniles, and sea lion predation on adults, will also  
3 effect positive change in the spawner:recruit ratios.

#### 4 **Hydro Performance**

5 20. WDFW has historically advocated for improved survival of juvenile salmon and  
6 steelhead through the Federal and FERC licensed hydro projects in the Columbia Basin to  
7 provide relief for a bottle-neck in the life cycle survival of these fish. We have successfully  
8 negotiated Habitat Conservation Plans with the Mid-Columbia PUDs in which the key  
9 component is achieving identified performance standards for juvenile passage survival for both  
10 listed and non-listed salmonid populations. We have been involved in working with the  
11 federal hydro operators for the past two decades to influence passage improvements for  
12 juveniles. We participated in the Hydro Work Group during the development of the provisions  
13 in the 2008 FCRPS BiOp and continue to participate in the Technical Management Team that  
14 focuses on annual operations concerning juvenile passage. We regularly request assistance  
15 from the Fish Passage Center to analyze data relative to salmon and steelhead juvenile  
16 monitoring to assist us in assessing the passage performance of the hydro system.

17 21. WDFW is pleased with the significant improvement in survival of juvenile  
18 salmon and steelhead passing downstream through the federal hydro projects. The majority of  
19 the improvement has occurred in the past ten years and has resulted in the BiOp performance  
20 standards for juvenile survival to be achieved or exceeded in most projects. The significant  
21 increase in juvenile survival can be attributed, in part, to a combination of increased spill and  
22 major investments by the U.S. Army Corps of Engineers (USACE) in re-configuration and  
23 operational changes at each project. The USACE has conducted rigorous studies concerning  
24 fish behavior and tailored re-configurations and operation, i.e., spill patterns unique to each  
25 project to respond to those behaviors and achieve the prescribed performance standards for  
26

1 juvenile survival. A key investment in recent years has been surface spillway weirs which has  
2 increased the number of juveniles that select the spill route for passage instead of other routes  
3 i.e. turbines where survival rates are lower. We are convinced that these recent year  
4 improvements in survival of river migrants through the Snake River and Columbia River hydro  
5 projects have substantially increased the number of juveniles reaching the ocean, and have  
6 greatly influenced the increased trend in adult return abundance, together with a corresponding  
7 reduction in extinction risk.

8  
9 22. The key to ensuring that the passage survival improvements through the hydro  
10 projects are performing as required and results are as expected is to continue to assess and  
11 monitor. WDFW will continue to utilize our technical expertise, our direct involvement in  
12 smolt monitoring at dams and in TMT, as well as our analytical results from both the FPC and  
13 the NWFSC to stay well versed and help the region ensure these passage improvements  
14 continue to provide the benefits to the fish populations that we are currently experiencing. We  
15 expect further improvements will occur as the USACE continues to invest in configuration and  
16 operational strategies to maximize survival at the individual projects.

### 17 **Tributary Habitat**

18 23. WDFW biologists recognize that removing blockages and restoration of  
19 tributary habitat is one of the most critical actions necessary to ensure the continued existence  
20 and recovery of the majority of Columbia Basin naturally produced fish populations. We have  
21 supported and will continue to support significant investments into improving habitat  
22 productivity in the Columbia River and Snake River Basins, based on our scientific  
23 understanding that the greatest risks to salmon persistence now lie in degraded habitat quality.

24 24. In our judgment, NOAA's approach to addressing the effectiveness of habitat  
25 actions to meet productivity improvement targets is sound and scientifically defensible. The  
26 Action agencies and NOAA have utilized the expertise of local fish recovery boards, state,

1 tribes, and federal scientists to inventory habitat quality in all the tributaries that produce ESA-  
2 listed salmon and steelhead. The local expertise and NOAAs Technical Review Teams have  
3 also assessed historical and current status of the fish populations in each tributary and  
4 developed data that builds upon the relationship between current habitat conditions, potential  
5 for improvement, and the productivity of the local fish populations. Our scientists are engaged  
6 in all of these efforts.

7  
8 25. Washington State participated in the development of habitat restoration projects  
9 for the FCRPS RPA. Prior to the remand, Expert science panels were convened for each  
10 region to assess each watershed and quantify the current habitat quality, identify the key  
11 limiting factors that need to be addressed to increase fish productivity, and provide estimates of  
12 how much improvement to specific limiting factors must be achieved to reach a targeted level  
13 of habitat quality improvement (HQI) to reach desired productivity increases for specific  
14 populations. The Action agencies coordinated with the expert panels to develop a list of  
15 habitat actions and how much needs to be done in specific areas to achieve the targeted HQIs.  
16 As habitat actions are implemented these expert panels are convened again to re-assess and  
17 update expected benefits and provide the Action Agencies with updated recommendations  
18 based on new information.

19 26. Washington continues to participate in this process. In response to remand of  
20 the 2010 BiOp, the expert panels were convened in 2012 to review the progress of specific  
21 habitat actions that were scheduled through 2013 and develop specific actions to correspond  
22 with limiting factors that were planned to be addressed during 2014-18. The Action Agencies  
23 utilized the expert panels and coordinated with tribal and state partners to develop an extensive  
24 list of actions to be implemented during 2014-18. These expert panels utilize the best available  
25 science for designing and implementing habitat restoration projects – science that was  
26 developed, in part, through the continuing regional collaboration and remand process.

1 Additionally, the projects planned through 2013 were updated to take into account the new  
2 information received from the expert panel as well as collaboration with agencies, tribes,  
3 landowners, and other interests in the specific watershed where habitat actions were underway  
4 or planned.

5 27. In our opinion the ability to exercise an adaptive management approach to  
6 implementing habitat actions is a key strength to the BiOp. Having the flexibility to react to  
7 new biological information acquired at the watershed level, or to factors that make  
8 implementation problematic or impossible, is an important feature to the success of a habitat  
9 restoration plan. The ability to supplement a particular action or provide for a replacement  
10 project is a key pragmatic management approach that has the best chance for success. NOAA  
11 should continue to support the flexibility at the project level in order to reach the desired  
12 outcomes at the population and/or major population group (MPG) level.

13 28. We believe that a closely managed and well informed list of actions, which have  
14 been through a rigorous review of experts to achieve prescribed levels of habitat quality  
15 improvement, is the most practical way to ensure that productivity in the tributary will increase  
16 to desired levels. WDFW sees these habitat actions as improvement in this particular limiting  
17 factor that must be viewed as a contributor to a full life cycle experience. Realizing these HQI  
18 targets in the tributaries will produce more smolts from the natal streams to experience the life  
19 cycle improvements that the BiOp accounts for in hydro, harvest, hatchery, and predation  
20 management. The full life cycle productivity compounds as the fish experience changes in  
21 each limiting factor from egg to adult. These full life cycle approaches to recovery make the  
22 most scientific sense to us as the cumulative effect of combined reductions in limiting factors  
23 is the bottom line to recover fish populations.

24 29. There is a relatively clear understanding amongst fishery scientists of the  
25 relationship between particular watershed functions, actions to improve those functions, and  
26

1 the relative importance to fish survival in that watershed. NOAAs approach to take advantage  
2 of that standing scientific knowledge to inform actions in each tributary is sound and  
3 defensible. However, the continued investment by the Action Agencies in Intensively  
4 Monitored Watersheds (IMWs) is important to sharpen the understanding of the relationship  
5 between specific habitat restoration actions, watershed functions, and smolt production. This  
6 BiOp commits to continue that tributary specific monitoring effort and to utilize that  
7 information as it becomes available to re-calibrate habitat restoration benefits as necessary.  
8 Again, this commitment to utilize and adapt to new information reinforces the improvement in  
9 certainty that is represented in the 2014 BiOp.

#### 10 **Estuary Habitat**

11 30. WDFW recognizes the significance of the altered habitat in the Columbia River  
12 estuary, in particular key shallow water habitat for migrating juveniles that has been cut-off  
13 due to development, flood control dikes and dredge spoils. We also recognize how the altered  
14 habitat has provided opportunity for an increase in predation of juvenile salmonids by birds  
15 and adult salmonids by predatory sea lions.

16 31. Estuary habitat projects are focused on restoring access to blocked shallow  
17 water habitat that provides food and protection from predators as well as extended rearing  
18 opportunity. More access to historic habitat in the estuary gives larger numbers of smolts the  
19 opportunity to prepare biologically to transition to the ocean environment. Increasing the  
20 quantity and quality of these types of habitats allows for more juveniles from all ESA listed  
21 populations to realize the survival benefits that are associated with access to shallow water  
22 habitat in the estuary, and relieves a critical density dependent bottleneck in their life history  
23 cycle.

24 32. WDFW supports the approach and actions that are currently underway to reach  
25 the survival improvements expected for ocean and river type salmon and steelhead migrating  
26

1 through the Columbia River estuary. WDFW is actively involved in developing and  
2 implementing estuary projects through a 10-year MOA with the Action Agencies to explore,  
3 coordinate, and develop estuary restoration projects through 2018. The Action Agencies have  
4 also partnered with others to implement and monitor estuary restoration including: Columbia  
5 Land Trust, Columbia River Estuary Study Task Force, Lower Columbia Fish Recovery  
6 Board, Cowlitz Indian Tribe, Lower Columbia Estuary Partnership, and the Northwest Power  
7 and Conservation Council.

8 33. Similar to the tributary habitat approach, NOAA has convened an expert panel  
9 of scientists referred to as the Estuary Review Technical Group (ERTG) to review potential  
10 projects and assign survival benefit units (SBUs) to each project prior to it being advanced.  
11 The ERTG has also assessed the total SBUs that need to be accomplished through estuary  
12 habitat projects to achieve the survival improvement targets for the salmon and steelhead  
13 smolts as a result of improved conditions in the estuary.

14 34. The Action Agencies have worked with partners and the ERTG to develop a  
15 comprehensive list of estuary restoration projects that are feasible and can provide the SBUs at  
16 levels that experts estimate will be consistent with the BiOp expectations for increased survival  
17 of ocean and stream type salmonids. The 2014 BiOp reports that 4,853 acres were restored  
18 through BiOp supported activity through 2013. The pace of restoration has increased in the  
19 past two years, and NOAA expects that the acres restored will increase to over 22,000 and will  
20 meet or exceed the targeting SBUs by 2018. The first few years of implementing these  
21 projects can be consumed with laying the ground work for project implementation i.e.  
22 hydrological studies, acquisitions, land owner coordination, local government coordination,  
23 feasibility studies, fish benefit analysis, etc. Given our own experience with implementing  
24 estuary restoration projects through the MOA, and the progress of key projects on the list, we  
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1 believe it is reasonable for NOAA to conclude that the pace of estuary restoration will increase  
2 significantly in the next few years and hit the SBU targets.

3 35. We are not aware of a reasonable scientific method for measuring, in real time,  
4 an *exact* survival increase for juvenile salmon migrating through the estuary compared to a  
5 base condition. However, there is similarly no exact basis for measuring anticipated survival  
6 improvements for other forms of mitigation. We use the most current scientific methods  
7 available, and adaptively modify our approach as new technology and science becomes  
8 available. Nevertheless, much work has been done in the estuary to evaluate the historic  
9 conditions compared to present and there is little dispute amongst fish scientists of the  
10 importance of shallow water habitat and the kinds of projects that will restore those benefits to  
11 fish. This information has been utilized by the ERTG and has resulted in a well-constructed  
12 plan to restore over 22,000 acres of this critical habitat. We support the conclusion that this  
13 magnitude of quality habitat restoration in the basin will provide significant survival benefits to  
14 migrating ESA listed salmon and steelhead juveniles. There is on-going and improved  
15 research, monitoring, and evaluation, including juvenile survival monitoring from Bonneville  
16 Dam downstream as well as assessment of utilization of restored habitats. This too provides  
17 additional certainty with regard to the benefits of habitat restoration efforts. Also, there are  
18 other long standing efforts to restore habitats in the estuary that have resulted in an additional  
19 thousands of acres restored during the past fifteen years. The BiOp supported efforts will  
20 compound the benefits associated with the existing and future restoration projects implemented  
21 by other partners.

## 22 **Conclusion**

23 36. WDFW has a long history of work on salmon related issues in the Columbia  
24 River Basin. We have worked with the tribes and northwest states for decades, long before  
25 salmon were ESA listed, to improve passage conditions through mainstem dams, and to  
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1 manage harvest and hatcheries and develop management agreements that we hoped would  
2 enable re-building of wild salmon and steelhead populations.

3 37. WDFW, along with other tribal and state co-managers, has a long history of  
4 challenging the federal action agencies and NOAA concerning the science and the adequacy of  
5 actions associated with federal hydro operations as well as mitigation. Most recently, we  
6 opposed the 2004 BiOp that was supposed to remedy the principle defect Judge Redden  
7 identified – a failure to make the promised mitigation “reasonably certain to occur.”

8 38. Fortunately, the collaborative path that the federal agencies charted in the latest  
9 remand effort was remarkably different than past efforts, and produced a 2008 and 2010 BiOp  
10 that we fully supported. After reviewing the Implementation Plan and the 2014 BiOp, we  
11 believe that the latest BiOp addresses the certainty issues identified in the most recent remand,  
12 is biologically sound, provides a positive track record for implementation and reflects  
13 improvements to the status of fish populations.

14 39. I think it is fair to observe that, unlike the 2004 remand a decade ago that was a  
15 disappointment to many, if not most of the managers in the basin, the current BiOp effort  
16 reflects a significant change in many values: transparency, commitment to collaboration,  
17 soliciting and utilizing regional expertise, a clear understanding of the status of the listed fish  
18 populations, adoption of performance standards, an inventory of limiting factors, a large suite  
19 of remedies, a commitment to implementation, and a robust monitoring and evaluation plan.  
20 The 2014 BiOp reflects an approach that we believe is credibly designed to produce positive  
21 outcomes for listed fish by reducing risk in the near term and progressing to recovery in the  
22 long term.

23 40. The substance of this BiOp is salmon conservation science, and it has been the  
24 subject of unending debate in the basin. Neither the 2014 BiOp, nor any other effort to re-  
25 write the BiOp, will resolve that debate. Nor does anyone expect that debate to cease nor  
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1 should it. Indeed, that is the nature of scientific study and the application of that science to  
2 human endeavor. We keep trying to better understand and adjust our actions as needed.

3 41. The uncertainty in the science, however, can be buffered by a thorough and  
4 robust monitoring and adaptive management program. Commitment to determining if all-H  
5 actions are performing as intended, and if fish populations are responding as expected, is the  
6 key to managing the future survival and recovery of the listed fish populations. As long as the  
7 monitoring program provides results that are compatible with the assumptions that underlie this  
8 BiOp, then a strong argument can be made that those assumptions are reasonable and realistic.

9 42. The AMIP contingency planning process includes a Tier 1 (trigger analysis) that  
10 evaluates population status trends by Evolutionarily Significant Unit (ESU). If a particular  
11 ESU performance is poor, a Tier 2 diagnosis step is triggered. The diagnosis step includes an  
12 all-H investigation of the performance of actions compared to expected, a technical  
13 assessment, and a collaborative policy decision process to formulate remedies, including  
14 additional actions as needed. Of course, the key to success of this process is commitment to  
15 collection of adequate data in which to base a future assessment and a commitment to adjust.  
16 We believe that NOAA and the Action Agencies have made that commitment in this BiOp.

17 43. What has transpired over the past 5-10 years in development of the most recent  
18 BiOps is very impressive when looking through a 30-year lens. There is an unprecedented  
19 cooperative effort that touches local governments and private land-owners through the various  
20 Columbia Basin Recovery Boards. Tribal, state, and federal efforts have produced long-term  
21 management agreements that protect and improve wild salmon status through *U.S. v. Oregon*  
22 and the international Pacific Salmon Treaty. States, tribes, and the federal government are  
23 working together on predator control and hatchery reform implementation.

24 44. The BiOp draws from all of these efforts and packages them together enabling  
25 WDFW to conclude that these actions have substantially reduced the risk to the ESA-listed  
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1 salmon and steelhead populations in the basin and are setting the stage for recovery. The  
2 package includes solid funding commitments, monitoring, adaptive management, and  
3 coordinating the various technical and policy representatives from the various management and  
4 regulatory interests to collaboratively manage these Columbia basin salmon populations.

5 45. WDFW supports maintaining the actions and associated investments in the All-  
6 H approach that is reflected in the 2014 supplemental BiOp. We firmly believe that NOAA  
7 has displayed enough scientific evidence that reflects a positive outlook for these populations  
8 in terms of reduced risk of extinction and a path forward to recovery, as well as a commitment  
9 to continued implementation and monitoring. We are satisfied that the 2014 is consistent with  
10 the WDFW mission to protect and restore fish and wildlife populations and their ecosystems.

11 I declare under penalty of perjury under the laws of the state of Washington that the  
12 above declaration is true and correct to the best of my knowledge.

13 DATED this 6th day of March, 2015, at Olympia, Washington.

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16 \_\_\_\_\_  
17 BILL TWEIT

**CERTIFICATE OF SERVICE**

I hereby certify that on March 6, 2015, the foregoing will be electronically filed with the Court's electronic court filing system, which will generate automatic service upon all Parties enrolled to receive such notice.

I FURTHER CERTIFY that on March 6, 2015, the foregoing was forwarded to the following person by U.S. Mail, first class postage prepaid:

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