BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS
STATE OF OREGON
for the
WATER RESOURCES DEPARTMENT

In the Matter of the Determination of the Relative Rights of the Waters of the Klamath River, a Tributary of the Pacific Ocean

Charles Switzler; Patricia Jill Switzler; ~~The Nature Conservancy~~; ~~WaterWatch of Oregon, Inc.~~; Roger Nicholson; Richard Nicholson; NBCC, LLC; AgriWater, LLC; Maxine Kizer; Ambrose McAuliffe; Susan McAuliffe; Company; Kenneth L. Tuttle and Karen L. Tuttle dba Double K Ranch; ~~Dave Wood~~; ~~Kenneth Zamzow;~~ Nicholson Investments, LLC; William S. Nicholson; John B. Owens; Kenneth Owens; William L. Brewer; ~~Mary Jane Danforth; Jane M. Barnes; Franklin Lockwood Barnes, Jr.~~; ~~Jacob D. Wood~~; ~~Elmore E. Nicholson; Mary Ann Nicholson;~~ Nicholson Loving Trust; Gerald H. Hawkins; Hawkins Cattle Co.; Owens &

PROPOSED ORDER

Case No. 280

Claims: 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, and that Portion of Claim 612 pertaining to the Sprague River and its Tributaries[1]

Contests: 21, 22, 23, 24, 25, 26, 27, 28, ~~2802, 2808~~[2], ~~3016, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056~~[3], 3314[4], 3343, 3344,

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[1] Claimant Klamath Tribes filed a notice withdrawing limited parts of its water rights claim. *See* KLAMATH TRIBES' NOTICE OF WITHDRAWAL OF STRUCTURAL HABITAT MAINTENANCE CLAIMS dated July 5, 2005.

[2] The Nature Conservancy voluntarily withdrew Contest 2808. *See* NOTICE OF WITHDRAWAL OF CONTEST dated March 16, 2007. The Nature Conservancy voluntarily withdrew Contest 2808. *See* NOTICE OF WITHDRAWAL OF CONTESTS dated April 10, 2007.

[3] WaterWatch of Oregon, Inc.'s contests 3016, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, and 3056 were dismissed. ORDER DISMISSING WATERWATCH OF OREGON, INC.'S CONTESTS, May 20, 2003.

[4] On October 31, 2003, William Bryant voluntarily withdrew from Contests 3314. On October 26, 2004, Dave Wood voluntarily withdrew from Contest 3314. Change of Title Interest for Contest 3314 from Roger Nicholson Cattle Co. to AgriWater, LLC (2/4/05). Change of Title Interest for Contest 3314 from Dorothy Nicholson Trust and Lloyd Nicholson Trust to Roger and Richard Nicholson (2/4/05). Change of Title Interest for Contest 3314 from Kenneth Hufford, Leslie Hufford, and Hart Estate Investments to Jerry and Linda Neff (2/11/05). Change of Title Interest for Contests 3314, 3343-3359 from William and Ethel Rust to David Cowan (3/9/05). Change of Title Interest for Contests 3314 and 3343-3359 from Walter Seput to James Wayne, Jr. (5/2/05). Change of Title Interest for Contest 3314 from Jim McAuliffe, McAuliffe Ranches, and Joe McAuliffe Co. to Dwight and Helen Mebane (7/8/05). Change of Title Interest for Contest 3314 from Anita Nicholson to Nicholson Investments, LLC (7/8/05). Change of portion of Title Interest for Contest 3314 from Dwight and Helen Mebane to Sevenmile Creek Ranch, LLC (8/15/05). Kenneth Zamzow voluntarily withdrew from Contest 3314 on September 2, 2005. William Knudtsen voluntarily withdrew from Contests 3314 and 3343-3359 on September 13, 2005. Change of Ownership filed for Contest 3314 reflecting that William V. Hill is deceased and his ownership rights transferred to Lillian M. Hill (6/15/06). Sevenmile Creek Ranch voluntarily withdrew from Contest 3314 on March 1, 2007. Franklin Lockwood Barnes, Jr. and Jane M. Barnes voluntarily withdrew from Contest 3314 on April 6, 2007. Mary Jane Danforth voluntarily withdrew from Contest 3314 on June 19, 2008. Change of Title Interest for Contests 3314 and 3343-3359 from Robert Bartell to Michael LaGrande (1/9/09). Change of Title Interest for Contest 3314 from

Hawkins; Harlowe Ranch; Terry M. Bengard; Tom Bengard; Robinson Best, LLC; ~~Dwight T. Mebane; Helen Mebane~~; ~~Sevenmile Creek Ranch, LLC~~; James G. Wayne, Jr.; Clifford Rabe; Tom Griffith; William Gallagher; Thomas William Mallams; River Springs Ranch; Pierre A. Kern Trust; ~~William V. Hill;~~ Lillian M. Hill; Carolyn Obenchain; Lon Brooks; Newman Enterprise; ~~William C. Knudtsen~~; Wayne Jacobs; Margaret Jacobs; Michael LaGrande; Rodney Z. James; Hilda Francis for Francis Loving Trust; David M. Cowan; James R. Goold for Tillie Goold Trust; Duane F. Martin; Modoc Point Irrigation District; ~~Peter M. Bourdet~~; Peter M. Bourdet and Linda Long; Vincent Briggs; J.T. Ranch Co.; Tom Bentley; Thomas Stephens; John Briggs; ~~William Bryant~~; Peggy Marenco; Jerry L. Neff & Linda R. Neff;
Contestants

vs.

United States, Bureau of Indian Affairs, as Trustee on behalf of the Klamath Tribes;
Claimant/Contestant, and

The Klamath Tribes;
Claimant/Contestant.

3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3902, 3903, 3904, 3905, 3906, 3907, 3908, 3909, 3910, 3911, 3912, 3913, 3914, 3915, 3916, 3917, 3918, 4002, 4031, 4032, 4033, 4034, 4035, 4036, 4037, 4038, 4039, 4040, 4041, 4042, 4043, 4044, 4045, 4046, 4047

PROCEDURAL HISTORY

This proceeding under the provisions of ORS Chapter 539 is part of a general stream adjudication to determine the relative rights of the parties to waters of the various streams and reaches within the Klamath Basin.

Klamath Case 280 involves several claims, all involving the Sprague River and its tributaries on the lands of the former Klamath Indian Reservation. Unlike the claims for individual water rights filed in this adjudication, Case 280 involves tribal claims for instream water rights. Claimants are the Klamath Tribes (Tribes) and the United States Bureau of Indian

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Elmore E. Nicholson and Mary Ann Nicholson to Nicholson Loving Trust (12/8/09). Change of Title Interest for Contests 3314 from Peter M. Bourdet to Peter Bourdet & Linda Long (1/8/09). Jacob D. Wood voluntarily withdrew from Contest 3314 on January 15, 2010. Change of portion of Title Interest for Contest 3314 from Roger Nicholson and Richard Nicholson to NBCC, LLC (3/17/2010). Change of Title Interest for Contests 3314 from Dwight & Helen Mebane to Farm Credit West, PCA (7/20/2011), and from Farm Credit West, PCA to PCA Acquired Properties, LLC (7/20/2011), and from PCA Acquired Properties, LLC to Robinson Best, LLC (7/20/2011).

Affairs (BIA) as Trustee on behalf of the Tribes.[5] Contestants are individually represented landowners as well as a larger conglomeration of landowners referred to throughout this adjudication as the Upper Basin Contestants (UBC).

On or about April 30, 1997, Claimants filed several claims for instream water rights to support the Tribes hunting, fishing, trapping and gathering rights on former reservation land. On October 1, 1999, Claimants filed amendments to each of the claims at issue here. On or about October 4, 1999, OWRD issued preliminary evaluations (PE) on each claim. Thereafter, UBC and other contestants filed the Statements of Contest (Contests) at issue in this case. Claimants also contested those portions of the PEs that proposed reduction, limitation, or denial of portions of the claims filed. The Claimants' claims for instream water rights were consolidated into eight cases. Case 280 addresses those claims to water within the Sprague River sub-basin.

On July 8, 2005,[6] the Tribes and the BIA filed a Joint Motion for Ruling on Legal Issues (Summary Determination). On that same date, UBC filed its own Motion for Ruling on Legal Issues. On February 12, 2007, Administrative Law Judge (ALJ) Maurice L. Russell II issued an Amended Order on Motions for Rulings on Legal Issues (Amended Order). In the Amended Order, ALJ Russell disposed of several contest grounds presented by UBC. In addition, ALJ Russell confirmed, *inter alia*, that the Tribes possessed treaty rights to hunt, fish, trap and gather on former reservation lands. Accordingly, ALJ Russell determined, as a matter of law, the Tribes possessed federally reserved water rights to whatever water is necessary to fulfill the purpose of the reservation. The priority date for the Tribes instream water rights was declared as "time immemorial." Through rulings in the Amended Order, ALJ Russell left only the quantification of Claimants' water rights for hearing.[7]

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[5] Claimants also hold status as contestants in this matter with regard to certain findings and determinations contained in the PEs. For clarity, the Tribes and BIA will be referred to as Claimants throughout this order.

[6] Between 1999 and 2010, the parties engaged in extensive discovery and motions practice. From its inception, this matter has been presided over by no less than four separate Administrative Law Judges from the Office of Administrative Hearings. The rulings of each are part of the record in this matter. A detailed discussion of all prehearing matters is unnecessary for the purposes of this order.

[7] In the Amended Order, ALJ Russell summarized his rulings as follows:

> 1. The Tribes have an Article 1 right to hunt, fish, trap and gather on the former reservation lands, and an associated federal reserved water right accompanying it, with a priority of time immemorial.
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> 2. *Adair I* and *Adair II* are controlling precedent throughout the former reservation lands in the particulars noted above.
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> 3. The quantification process for determining the amount of water will be a modified two-step process: Claimants have the burden to show the amount of water necessary to build or preserve a viable and self-renewing population of treaty species, including the healthy and productive habitat necessary to such a population, sufficient for the exercise of the Tribes' aboriginal rights, and Contestants have the burden to show that a lesser amount of water will accomplish the same healthy, productive habitat.
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> 4. The "as currently exercised" language in *Adair II* does not refer to a level of water based upon any specific date; rather, it refers to determining the appropriate healthy, productive habitat in the present, as opposed to trying to recreate the situation in 1864, at the time the treaty was signed.

On September 28, 2009, Contestants filed Amended Statements of Contest (Amended Contest) as permitted by the scheduled of proceedings in this matter. In the Amended Contests, Contestants incorporated previously raised contests and asserted new contests to the claims.[8]

On December 10, 2009, the parties filed written direct testimony and exhibits. On March 25, 2010, the parties filed written rebuttal testimony and exhibits. On April 2, 2010, The Office of Administrative Hearings (OAH) assigned Senior ALJ Joe L. Allen to preside over all further proceedings in the Klamath Basin Adjudication. An in-person cross-examination hearing convened on May 3, 2010, in Salem, Oregon with Senior ALJ Allen presiding.[9]

EVIDENTIARY RULINGS

Prior to the in-person hearing, the parties in this matter filed more than 800 exhibits, consisting of thousands of pages, along with written direct and rebuttal testimony. Pursuant to an instruction from the ALJ, the parties filed written objections to evidence and testimony on or about April 12, 2010. The parties filed responses to objections on or about April 26, 2010. The ALJ issued a written ruling on objections at the initiation of the in-person hearing. That ruling is

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5. There were two primary purposes to the Treaty of 1864. The Article 2 purpose was agricultural, and had a priority date of October 14, 1864. The Article 1 purpose was a reservation of the Tribes' aboriginal right to hunt, fish, trap and gather, with a priority date of time immemorial.

6. The Tribes are entitled to an instream flow through the former reservation lands which is sufficient to fulfill the purposes of the reservation, and no more.

7. The parties are not limited to the evidence provided in the 1970 ODFW report. They may offer whatever evidence they choose, subject to admissibility, including whatever methods they consider appropriate, to determine the amount of water required to satisfy the Tribe's treaty rights on the former reservation lands.

8. The recognition of Tribal water rights on the former reservation lands does not create an equal protection issue under the Constitution.

9. OWRD has a statutory responsibility to provide hydrology data on water availability in these claims on request. The parties may rely upon the OWRD data, or they may attack that data or supplement that data.

(Amended Order at 23 and 24. **Bold** and ~~strikethrough~~ omitted.)

[8] ORS 539.110 provides, in relevant part, "* * *[t]he evidence in the proceedings shall be confined to the subjects enumerated in the notice of contest." Contestants raised several new challenges to the claims through the Amended Contests. However, some issues were deemed inapplicable and irrelevant at the outset of the cross-examination hearing. Accordingly, evidence on those issues was excluded as irrelevant. Those rulings are part of the permanent record in this proceeding. A protracted discussion of those rulings is therefore unnecessary in this order. As such, only those contest grounds not disposed of through the Amended Order or through rulings on the record, during cross-examination proceedings, are discussed herein.

[9] The parties assigned exhibit numbers to the direct and rebuttal testimonies of each witness. For clarity, references to direct or rebuttal testimony in this order will cite to the exhibit number assigned by the party proffering such testimony. References to testimony given at the in-person cross-examination hearing will be cited as "Test. of [witness name]."

part of the record in this matter and therefore it is unnecessary to reiterate those evidentiary rulings in this order.

EXPERT TESTIMONY

This case presents a classic "battle of experts" with regard to the hydrologic, as well as physical and riparian habitat calculations. Expert testimony at the hearing was in direct conflict regarding facts relevant to a determination in this matter. Each party's experts opined extensively about the amount of water necessary to establish healthy and productive habitat for the exercise of the Tribes' treaty rights. The parties' experts have also come to significantly different conclusions about how much water is necessary to accomplish the stated goals. Despite the wealth of knowledge presented by Claimants and UBC, only one side's calculations can be accepted as reliable. In this matter, either Claimants are correct, that the claims presented represent the minimum amount of water necessary, or UBC is correct in its assertions that a lesser amount will do.[10] These contradictions must therefore be resolved through a determination of which evidence is entitled to greater weight.

At the hearing, UBC presented the testimony of Graeme Aggett, an expert in fluvial geomorphology. In his testimony, Mr. Aggett opines about the inferiority of the habitat models used by Claimants and the superiority of the models and data he employed. Unfortunately, Mr. Aggett failed to provide any substantive information regarding his modeling techniques. Specifically, Mr. Aggett provided little, if any, data collected. Nor did Mr. Aggett provide the input files for his calculations. Finally, no true detailed results for the models were provided to support his testimony in this case. UBC also presented testimony of Frank Rozaklis, an environmental engineer. Mr. Rozaklis testified about the flaws inherent in OWRD's stream flow estimates provided in Cooper 2004 and adopted by Claimants. In contrast, Mr. Rozaklis adopts the results presented in the United States Bureau of Reclamation's (USBR) Natural Flow Study as the basis for his stream flow estimates. However, Mr. Rozaklis provides no independent basis for relying on the data presented therein, despite the fact that the National Research Council reviewed USBR's Natural Flow Study and found it to be lacking adequate calibration and testing.

To the contrary, BIA's experts disclosed extensive amounts of data to allow the parties to conduct independent analysis and confirmation of the IFIM/PHABSIM model results that serve as the bases for the claims presented herein. Further, BIA's riparian habitat expert submitted his cottonwood tree ring study along with underlying data that would allow independent validation of the methodologies employed. Moreover, BIA's hydrologist performed independent testing to confirm stream flow estimates provided by OWRD prior to adopting the results presented in the Cooper 2002 and 2004 reports. Finally, it must be noted that OWRD submitted the methodologies used in Cooper 2002 and 2004 to peer review before adopting the results.

UBC's other experts likewise seem to have gathered little, if any field data. Rather, UBC's experts appear to build upon the questionable and unverifiable estimations of Mr. Aggett.

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[10] A third possibility, that both sides are incorrect and some other, unstated, amount of water is sufficient, is not considered. No party has presented such evidence and the necessary calculations are beyond the abilities of this tribunal.

To that extent, the reliability of such expert testimony becomes suspect. In contrast, testimony provided by Claimants' experts is well supported by verifiable evidence. It also appears well reasoned in its conclusions. Consequently, where testimony conflicts, greater weight is given to the testimonies of Claimants' experts including Drs. Chapin and Reiser, and Mr. Ramey.

ISSUES

1. Whether the claimed instream flows are necessary to establish a healthy and productive habitat to allow the exercise of the Klamath Tribes' hunting, fishing, trapping, and gathering rights guaranteed by the treaty of 1864.

2. Whether Claimants' are entitled to claim instream flows outside the boundaries of the former reservation for Claims 647, 650, 652, 654, 656, 656, and 657, in order to fulfill the purposes of the reservation.

3. Whether the Tribes' treaty rights have been extinguished on lands no longer owned by the Tribes.

4. Whether the Klamath Restoration Act of 1986 limited the restoration of the Tribes' treaty rights on former reservation land.

5. Whether Claimants must subordinate their claims based upon stipulated agreements to settle other claims in this adjudication.

FINDINGS OF FACT

The Treaty of 1864 and applicable case law.

1. The Klamath Tribes (including the Klamath and Modoc Tribes and the Yahooskin Band of Snake Indians) entered into a treaty with the United States on October 14, 1864. Article 1 of the Treaty involved cession of approximately 20 million acres of land to the United States in return for the establishment of the Klamath Reservation. Article 1 also reserved to the Tribes the "exclusive right of taking fish in the streams and lakes, included in said reservation, and of gathering edible roots, seeds, and berries within its limits * * *." Article 2 of the Treaty provided for payment for the cession of the Tribes' lands, and announced the purpose of promoting the Tribes in civilization, particularly agriculture. (Treaty of 1864.)

2. In 1975, the United States, as trustee for the Tribes, filed a lawsuit in federal court against several water users in the Klamath Basin, primarily along the Sprague River and its tributaries. The government sought to establish the priorities of its claimed federal reserved water rights. In 1979, the District Court issued an opinion finding that the Klamath Tribes had an aboriginal water right to accompany their right to hunt, fish, trap and gather on the former reservation lands. The court further found that the Termination Act of 1954 did not extinguish those aboriginal rights. The court considered the Tribes' exercise of its aboriginal rights to hunt,

fish, trap and gather[11] to be one of the primary purposes of the Treaty of 1864. *U.S. v. Adair*, 478 F.Supp. 336 (1979) (*Adair I*).

3. In 1983, the Ninth Circuit affirmed *Adair I*, concluding that the District Court had been correct but adding its own ideas about the quantification process. *U.S. v. Adair*, 723 F.2d 1394 (1983) cert den (1984) (*Adair II*).

Species subject to the Tribes' treaty rights.

4. The Tribes' culture, cosmology, and way of life are based upon hunting, fishing, gathering, and trapping in their aboriginal homeland. Treaty resources provide food, clothing and tools for tribal families. Treaty resources are also central to the Tribes' religious and cultural practices and have been so since before creation of the reservation. This is demonstrated by the Tribes' Return of C'waam and First Salmon Ceremonies. (Exs. 280-KT-55 and 280-KT-1, 280-US-100, and 280-US-130.)

5. Treaty resources include several species of fish traditionally taken from rivers and streams within the former reservation by tribal members. These species include various types of trout, as well as various species of suckers (referred to by the Tribes as c'waam). Before construction of dams downstream of the former reservation land, tribal members also fished large quantities of salmon from these rivers and streams. Tribal members gather crayfish from hiding places where riparian vegetation overhangs the river and stream banks. Tribal families also harvest freshwater mussels from beds within the rivers and streams. (Exs. 280-KT-1, 280-KT-55, 280-US-100, 280-US-130, and 280-US-400.)

6. In 1986, the Tribes voluntarily closed the sucker fishery due to declining populations of these fish. In 1988, the suckerfish was classified as an endangered or threatened species according to the Endangered Species Act of 1973 (16 U.S.C. §1531 et seq.). (Ex. 280-KT-1.)

7. Prior to construction of dams downstream of the former reservation, salmon provided up to one-half of the food necessary for subsistence of tribal members each year. Construction of dams downstream of the former reservation has prevented salmon from entering the rivers and streams on the former reservation. (Exs. 280-US-100 and 280-US-130.)

8. Traditionally, the Tribes have hunted and trapped several species on former reservation land. These include but are not limited to deer, elk, antelope, bear, beaver, rabbit, ducks, and geese. Tribal members also harvest duck and goose eggs from riparian areas along the streams within the former reservation. Historically, tribal members would move to hunting camps along rivers and streams within the basin for the summer months. Some tribal families continue this practice today. (Exs. 280-KT-1, 280-KT-5 through 280-KT-8, and 280-KT-55.)

9. Tribal members traditionally gather several varieties of riparian plant species for use as food or medicine, as well as making traditional hunting and gathering tools. In addition, many

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[11] The fish, animal, and plant species subject to the Tribes' aboriginal rights are referred to throughout this order as "treaty resources."

riparian plant species are used in traditional tribal ceremonies. These species include apos, aspen trees, camas, cattail roots, chokecherries, currants, dock seeds, elderberries, foxtail grass and seeds, Klamath plums, Oregon grapes, and other wild berries and roots. Several species of trees found in these riparian habitats provide means of drying fish as well as wood for tool making. These include, lodge pole pine, aspen, cottonwood, and willow. (Ex. 280-KT-1, 280-KT-4, and 280-KT-55.)

10. Of particular importance among plant species gathered by the Tribes are pond lily seed pods, referred to as "wocus." At one time, the wocus constituted a staple of the Tribes, second only to fish. Reduced water levels on former reservation land have negatively impacted wocus quantity and quality. (Exs. 280-US-130, 280-KT-55, 280-KT-63, and 280-KT-64.)

11. Species hunted and trapped by the Tribes use riparian environments within the former reservation as cover, forage, nesting, and giving birth. A healthy riparian environment is necessary to attract many species subject to the Tribes aboriginal rights. Likewise, a healthy riparian environment is necessary for the propagation of plant species harvested by the Tribes. (Exs. 280-KT-1, 280-US-300, and 280-US-500.)

Claims and contests.

12. On or about April 29, 1997, [12] the Klamath Tribes filed a Statement and Proof of Claim to the Use of Surface Waters of the Klamath River and its Tributaries[13] (Claim 612). Through Claim 612, the Tribes adopted each claim filed by the BIA as trustee on behalf of the Tribes.[14] On October 1, 1999, the Tribes filed an Amended Statement and Proof of Claim. This Amended Claim 612 adopted and incorporated the amended claims filed by the BIA. (OWRD Ex. 1 at 6 through 64.)

13. On April 30, 1997, the BIA filed Claims 641 through 657. On October 1, 1999, the BIA filed amendments to each of these claims. Each claim identified instream flows within the Sprague River and its tributaries, which the BIA purported were necessary to fulfill the purposes of the reservation created by the Treaty of October 14, 1864 between the United States and the Klamath Tribes. Each claim filed identifies stream flow quantities, in cubic feet per second (cfs), broken down by month. The priority date for each claim was declared to be "time immemorial." Each of the claims originally claimed reserved water rights measured by three distinct components: physical habitat, riparian habitat maintenance, and structural habitat maintenance. (OWRD Exs. 33 through 45.)

14. Claim 641 claimed instream flows in a reach of the Sprague River extending from Chiloquin Dam to the Williamson River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 378 cfs to 600 cfs. The claimed flows for riparian habitat

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12 Consistent with the claim filings of the BIA, the letter from the Tribes counsel transmitting Claim 612 to OWRD is dated April 30, 1997. However, Claim 612 bears a date stamp from OWRD indicating the department received the claim on April 29, 1997.

13 Statement and Proof of Claims are referred to throughout this order simply as claims.

14 For the purposes of this order, Claim 612 incorporates Claims 641 through 657.

maintenance ranged from 378 cfs to 3,436 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 746 cfs and a cap flow of 8,099 cfs. (OWRD Ex. 29 at 1 through 4.)

15. Claim 641 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as Township 35 south, Range 7 east, Section 3, Northeast ¼, Southeast ¼ (T 35S, R 7E, S 3, NE ¼, SE ¼), distance from SE corner N 40° 30'34" W, 1,786.3 ft. The lower reach boundary is identified as T 35S, R 7E, S 3, NW ¼, NW ¼, distance from NW corner S 61° 20'36" E, 996.8 ft. (OWRD Ex. 29 at 16.)

16. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 641. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 392 cfs to 600 cfs. The amended flows for riparian habitat maintenance ranged from 392 cfs to 3,436 cfs. The amended flows for structural habitat maintenance ranged from 774 to 8,099 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 29 at 12 through 16.)

17. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 641. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

18. Claim 642 claimed instream flows in a reach of the Sprague River extending from Braymill to Chiloquin Dam. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat were stated as 150 for each month. The claimed flows for riparian habitat maintenance ranged from 375 cfs to 3,436 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 740 cfs and a cap flow of 8,099 cfs. (OWRD Ex. 30 at 1 through 4.)

19. Claim 642 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 34S, R 8E, S 19, NW ¼, SE ¼, distance from SE corner N 51° 46'43" W, 2,422.4 ft. The lower reach boundary is identified as T 35S, R 7E, S 3, NE ¼, SE ¼, distance from SE corner N 40° 30'34" 1,786.3 ft. (OWRD Ex. 30 at 16.)

20. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 642. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 150 cfs to 300 cfs. The amended flows for riparian habitat maintenance ranged from 390 cfs to 3,436 cfs. The amended flows for structural habitat maintenance ranged from 767 to 8,099 cfs.

The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 30 at 12 through 16.)

21. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 642. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

22. Claim 643 claimed instream flows in a reach of the Sprague River extending from Upper S'Ocholis Canyon to Braymill. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat were stated as 300 cfs for each month. The claimed flows for riparian habitat maintenance ranged from 347 cfs to 3,000 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 683 cfs and a cap flow of 6,646 cfs. (OWRD Ex. 31 at 1 through 8.)

23. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 643. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 300 cfs to 500 cfs. The amended flows for riparian habitat maintenance ranged from 368 cfs to 3,000 cfs. The amended flows for structural habitat maintenance ranged from 710 cfs to 6,646 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 31 at 16 through 31.)

24. Claim 643 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 35S, R 9E, S 9, NE ¼, NE ¼, distance from NE corner S 21°17'57" W, 916.9 ft. The lower reach boundary is identified as T 34S, R 8E, S 19, NW ¼, SE ¼, distance from SE corner N 51° 46'43" W, 2,422.4 ft. (OWRD Ex. 31 at 22.)

25. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 643. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

26. Claim 644 claimed instream flows in a reach of the Sprague River extending from Trout Creek to Upper S'Ocholis Canyon. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat were stated as 200 cfs for each month. The claimed flows for riparian habitat maintenance ranged from 347 cfs to 3,000 cfs. The claimed flows for structural habitat

maintenance identified a trigger flow of 682 cfs and a cap flow of 6,645 cfs. (OWRD Ex. 32 at 1 through 4.)

27. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 644. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat remained at 200 cfs for each month. The amended flows for riparian habitat maintenance ranged from 368 cfs to 3,000 cfs. The amended flows for structural habitat maintenance ranged from 710 cfs to 6,645 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 32 at 12 through 16.)

28. Claim 644 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 35S, R 9E, S 36, NE ¼, NW ¼, distance from NW corner S 73° 33'8" E, 1,524.6 ft. The lower reach boundary is identified as T 35S, R 9E, S 9, NE ¼, NE ¼, distance from NE corner S 21° 17'57" W, 916.9 ft. (OWRD Ex. 32 at 16.)

29. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 644. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

30. Claim 645 claimed instream flows in a reach of the Sprague River extending from the Sycan River to Trout Creek. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 294 cfs to 522 cfs. The claimed flows for riparian habitat maintenance ranged from 294 cfs to 2,800 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 574 cfs and a cap flow of 6,168 cfs. (OWRD Ex. 33 at 1 through 10.)

31. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 645. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 326 cfs to 450 cfs. The amended flows for riparian habitat maintenance ranged from 326 cfs to 2,800 cfs. The amended flows for structural habitat maintenance ranged from 601 cfs to 6,168 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 33 at 18 through 25.)

32. Claim 645 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 36S, R 12E, S 10, NW ¼, SW ¼, distance from SW corner N 33° 9'54" E, 1,777.7 ft. The lower reach boundary is identified as T 35S, R 9E, S 36, NE ¼, NW ¼, distance from NW corner S 73° 33'8" E, 1,524.6 ft. (OWRD Ex. 33 at 25.)

33. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 645. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

34. Claim 646 claimed instream flows in a reach of the Sprague River extending from Kirk Spring to the Sycan River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 175cfs to 200 cfs. The claimed flows for riparian habitat maintenance ranged from 178 cfs to 2,031 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 341 cfs and a cap flow of 4,275 cfs. (OWRD Ex. 34 at 1 through 4.)

35. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 646. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 177 cfs to 500 cfs. The amended flows for riparian habitat maintenance ranged from 177 cfs to 2,031 cfs. The amended flows for structural habitat maintenance ranged from 354 cfs to 4,275 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 33 at 12 through 16.)

36. Claim 646 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 36S, R 12E, S 13, NW ¼, SE ¼, distance from SE corner N 37° 51'23" W, 2,647.7 ft. The lower reach boundary is identified as T 36S, R 12E, S 10, NW ¼, SW ¼, distance from SW corner N 33° 9'54" E, 1,777.7 ft. (OWRD Ex. 33 at 16.)

37. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 646. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

38. Claim 647 claimed instream flows in a reach of the Sprague River extending from the confluence of the north and south forks of the Sprague River to Kirk Spring. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 176 cfs to 752 cfs. The claimed flows for riparian habitat maintenance ranged from 176 cfs to 1,600 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 335 cfs and a cap flow of 3,208 cfs. The uppermost portion of Claim 647 lies outside the eastern boundary of the former reservation. (OWRD Ex. 35 at 1 through 6.)

39. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 647. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 101 cfs to 169 cfs. The amended flows for riparian habitat maintenance ranged from 175 cfs to 1,600 cfs. The amended flows for structural habitat maintenance ranged from 348 cfs to 3,208 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 35 14 through 19.)

40. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 647. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

41. Claim 647 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 36S, R 14E, S 19, NE ¼, NW ¼, distance from NW corner S 49° 2'18" E, 2,001.6 ft. The lower reach boundary is identified as T 36S, R 12E, S 13, NW ¼, SE ¼, distance from SE corner N 37° 51'23" W, 2,647.7 ft. (OWRD Ex. 35 at 19.)

42. Claim 648 claimed instream flows in a reach of Trout Creek extending from the confluence of the north and south forks of Trout Creek to the Sprague River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 11 cfs to 23 cfs. The claimed flows for riparian habitat maintenance ranged from 21 cfs to 180 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 14 cfs and a cap flow of 310 cfs. (OWRD Ex. 36 at 1 through 4.)

43. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 648. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 2 cfs to 11 cfs. The amended flows for riparian habitat maintenance ranged from 2 cfs to 180 cfs. The amended flows for structural habitat maintenance ranged from 17 cfs to 310 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 36 at 12 through 16.)

44. Claim 648 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 35S, R 9E, S 35, SW ¼, SW ¼, distance from SW corner N 67° 52'10" E, 1,226.5 ft. The lower reach boundary is identified as T 35S, R 9E, S 36, NE ¼, NW ¼, distance from NW corner S 73° 33'8" E, 1,524.6 ft. (OWRD Ex. 36 at 16.)

45. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 648. These downward

adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

46. Claim 649 claimed instream flows in a reach of Whisky Creek extending from the source of Whisky Creek to the Sprague River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 29 cfs to 78 cfs. The claimed flows for riparian habitat maintenance ranged from 29 cfs to 155 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 20 cfs and a cap flow of 276 cfs. (OWRD Ex. 37 at 1 through 4.)

47. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 649. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 3 cfs to 11 cfs. The amended flows for riparian habitat maintenance ranged from 3 cfs to 155 cfs. The amended flows for structural habitat maintenance ranged from 24 cfs to 276 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 37 at 11 through 15.)

48. Claim 649 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 36S, R 12E, S 30, SW ¼, SW ¼, distance from SW corner N 81° 35'59" E, 1,997.1 ft. The lower reach boundary is identified as T 36S, R 11E, S 12, SE ¼, SW ¼, distance from SW corner N 49° 48'28" E, 1,892.3 ft. (OWRD Ex. 37 at 15.)

49. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 649. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

50. Claim 650 claimed instream flows in a reach of the North Fork of the Sprague River extending from Balley Flats to the confluence of the north and south forks of the Sprague River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 45 cfs to 73 cfs. The claimed flows for riparian habitat maintenance ranged from 68 cfs to 900 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 70 cfs and a cap flow of 1,684 cfs. Claim 650 claims water rights in a portion of the stream reach outside reservation boundary. (OWRD Ex. 38 at 1 through 6.)

51. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 650. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that

became available between 1997 and 1999. The amended flows for physical habitat ranged from 32 cfs to 50 cfs. The amended flows for riparian habitat maintenance ranged from 32 cfs to 900 cfs. The amended flows for structural habitat maintenance ranged from 200 cfs to 1,684 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 38 at 14 through 19.)

52. Claim 650 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 35S, R 14E, S 35, SW ¼, SW ¼, distance from SW corner N 30° 34'4" E, 191.8 ft. The lower reach boundary is identified as T 36S, R 14E, S 19, NE ¼, NW ¼, distance from NW corner S 49° 2'18" E, 2,001.6 ft. (OWRD Ex. 38 at 19.)

53. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 650. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

54. Claim 651 claimed instream flows in a reach of the North Fork of the Sprague River extending from Boulder Creek to Balley Flats. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 30 cfs to 60 cfs. The claimed flows for riparian habitat maintenance ranged from 40 cfs to 900 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 40 cfs and a cap flow of 1,599 cfs. Claim 651 claims water rights in a portion of the stream reach outside reservation boundary. (OWRD Ex. 39 at 1 through 4.)

55. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 651. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 22 cfs to 50 cfs. The amended flows for riparian habitat maintenance ranged from 22 cfs to 900 cfs. The amended flows for structural habitat maintenance ranged from 117 cfs to 1599 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 39 at 12 through 16.)

56. Claim 651 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 35S, R 15E, S 21, NE ¼, SW ¼, distance from SW corner N 48° 50'3" E, 2,965.7 ft. The lower reach boundary is identified as T 35S, R 14E, S 35, SW ¼, SW ¼, distance from SW corner N 30° 34'4" E, 191.8 ft. (OWRD Ex. 39 at 16.)

57. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 651. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's

experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

58. Claim 652 claimed instream flows in a reach of Five Mile Creek extending from the Lower United States Forest Service (USFS) Boundary to the North Fork of the Sprague River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 20 cfs to 50 cfs. The claimed flows for riparian habitat maintenance ranged from 38 cfs to 220 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 38 cfs and a cap flow of 434 cfs. A portion of the lower end of this reach also extends beyond the eastern boundary of the former reservation. (OWRD Ex. 40 at 1 through 4.)

59. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 652. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 26 cfs to 40 cfs. The amended flows for riparian habitat maintenance ranged from 26 cfs to 220 cfs. The amended flows for structural habitat maintenance ranged from 25 cfs to 434 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 40 at 12 through 16.)

60. Claim 652 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 36S, R 13E, S 25, NW ¼, NE ¼, distance from NE corner S 88° 53'52" W, 1673 ft. The lower reach boundary is identified as T 36, R 14E, S 7, SW ¼, NW ¼, distance from SW corner N 44° 3'42" E, 1,987.8 ft. (OWRD Ex. 40 at 16.)

61. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 652. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

62. Claim 653 claimed instream flows in a reach of Five Mile Creek extending from the source of Five Mile Creek to the Lower USFS Boundary. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 21 cfs to 34 cfs. The claimed flows for riparian habitat maintenance ranged from 21 cfs to 170 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 21 cfs and a cap flow of 289 cfs. (OWRD Ex. 41 at 1 through 4.)

63. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 653. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 17 cfs to 30 cfs. The amended flows for riparian habitat maintenance ranged from 17 cfs to 130

cfs. The amended flows for structural habitat maintenance ranged from 14 cfs to 289 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 41 at 12 through 16.)

64. Claim 653 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 34S, R 13E, S 36, SE ¼, SE ¼, distance from SE corner N 40° 12'00" W, 1,705.3 ft. The lower reach boundary is identified as T 35S, R 13E, S 25, NW ¼, NE ¼, distance from NE corner S 88° 53'52" W, 1,673 ft. (OWRD Ex. 41 at 16.)

65. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 653. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

66. Claim 654 claimed instream flows in a reach of the South Fork of the Sprague River extending from Fishhole Creek to the confluence of the north and south forks of the Sprague River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 114 cfs to 480 cfs. The claimed flows for riparian habitat maintenance ranged from 114 cfs to 980 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 214 cfs and a cap flow of 1,856 cfs. Claim 654 claims water rights in a portion of the Sprague River outside reservation boundary. (OWRD Ex. 42 at 1 through 4.)

67. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 654. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 63 cfs to 106 cfs. The amended flows for riparian habitat maintenance ranged from 130 cfs to 920 cfs. The amended flows for structural habitat maintenance ranged from 226 cfs to 1,856 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 42 at 12 through 16.)

68. Claim 654 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 36S, R 14E, S 27, NE ¼, SE ¼, distance from SE corner N 0° 42'53" W, 2146 ft. (Stipulation).[15] The lower reach boundary is identified as T 36S, R 14E, S 19, NE ¼, NW ¼, distance from NW corner S 49° 2'18" E, 2001.6 ft. (OWRD Ex. 42 at 16.)

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[15] In closing briefs, OWRD raised issue with a discrepancy as to the location of this boundary. In reply briefs, Claimants and OWRD stipulated to the location of the upper reach boundary). No affidavit was filed in support of either reply brief. As such, this order simply cites to the stipulation of the parties where necessary. (See, *Oregon Water Resources Department's Reply Brief* at 8.)

69. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 654. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

70. Claim 655 claimed instream flows in a reach of the South Fork of the Sprague River extending from Ish Tish Creek to Fishhole Creek. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 45 cfs to 50 cfs. The claimed flows for riparian habitat maintenance ranged from 63 cfs to 610 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 81 cfs and a cap flow of 1,169 cfs. Claim 655 claims water rights in a portion of the stream reach outside reservation boundary. (OWRD Ex. 43 at 1 through 6.)

71. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 655. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 23 cfs to 50 cfs. The amended flows for riparian habitat maintenance ranged from 23 cfs to 610 cfs. The amended flows for structural habitat maintenance ranged from 133 cfs to 1,169 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 43 at 14 through 19.)

72. Claim 655 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 37S, R 15E, S 9, NE ¼, SW ¼, distance from SW corner N 47° 10'14" E, 3,039.7 ft. The lower reach boundary is identified as T 36S, R 14E, S 26, NW ¼, SW ¼, distance from SW corner N 0° 24'20" E, 2,078.6 ft. (OWRD Ex. 43 at 19.)

73. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 655. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

74. Claim 656 claimed instream flows in a reach of the South Fork of the Sprague River extending from Brownsworth Creek to Ish Tish Creek. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 46 cfs to 130 cfs. The claimed flows for riparian habitat maintenance ranged from 46 cfs to 590 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 64 cfs and a cap flow of 1,073 cfs. Claim 656 claims water rights in a portion of the stream reach outside reservation boundary. (OWRD Ex. 44 at 1 through 4.)

75. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 656. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 19 cfs to 60 cfs. The amended flows for riparian habitat maintenance ranged from 19 cfs to 590 cfs. The amended flows for structural habitat maintenance ranged from 106 cfs to 1,073 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 44 at 12 through 16.)

76. Claim 656 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 37S, R 15E, S 2, SE ¼, NW ¼, distance from NW corner S 36° 42'46" E, 2,643.3 ft. The lower reach boundary is identified as T 37S, R 15E, S 9, NE ¼, SW ¼, distance from SW corner N 47° 10'14" E, 3,039.7 ft. (OWRD Ex. 44 at 16.)

77. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 656. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

78. Claim 657 claimed instream flows in a reach of Demming Creek extending from the source of Demming Creek to the South Fork of the Sprague River. The claim asserted a water right for the three components for the period January 1 through December 31 each year. The claimed flows for physical habitat ranged from 4 cfs to 10 cfs. The claimed flows for riparian habitat maintenance ranged from 4 cfs to 105 cfs. The claimed flows for structural habitat maintenance identified a trigger flow of 5 cfs and a cap flow of 166 cfs. Claim 657 claims water rights in a portion of the stream reach outside reservation boundary. (OWRD Ex. 45 at 1 through 8.)

79. In 1999, the BIA filed an Amended Statement and Proof of Claim for Claim 657. In the amended claim, the BIA adjusted the claimed flows to accurately reflect hydrologic data that became available between 1997 and 1999. The amended flows for physical habitat ranged from 2 cfs to 9 cfs. The amended flows for riparian habitat maintenance ranged from 2 cfs to 105 cfs. The amended flows for structural habitat maintenance ranged from 7 cfs to 166 cfs. The BIA based the physical habitat and riparian habitat maintenance claims on a 20 percent exceedence flow level. (OWRD Ex. 45 at 16 through 22.)

80. Claim 657 identifies the upper and lower reach boundaries longitude and latitude coordinates as well as township-range designations. The township-range description for the upper reach boundary is identified as T 36S, R 15E, S 1, NE ¼, NW ¼, distance from NW corner S 82° 9'45" E, 1,964.1 ft. The lower reach boundary is identified as T 36S, R 14E, S 28, NW ¼, NW ¼, distance from NW corner S 78° 33'37" E, 508.7 ft. (OWRD Ex. 45 at 22.)

81. In December 2009, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 657. These downward adjustments resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as basin wide studies of the physical and riparian habitats, conducted by BIA's experts. The updated claim was capped at the lesser of 66-percent of the median stream flow or the 1999 claim, whichever was lower. (Exs. 280-US-200, 280-US-221, 280-US-300, 280-US-323, 280-US-400, and 280-US-485; test. of Chapin and Ramey.)

82. Several treaty species utilize all or part of Claims 647,650, 651, 652, 654, 655, 656, and 657 to fulfill biological needs. These include Redband and Bull trout, Lost River suckers, as well as Klamath Large Scale, and Shortnose suckers. In addition, historically, Chinook salmon used all or part of the waters subject to Claims 647, 650 through 652, and 654 through 657 to fulfill important biological needs. (Exs. 279-US-400 and 279-US-300.)

83. The BIA based the physical habitat and riparian habitat maintenance claims, for all claims updated in 2009, on a 50-percent exceedence flow level rather than the previous 20-percent exceedance level. (Ex. 280-US-200; test. of Chapin and Ramey.)

Stream flow estimates provided by OWRD.

84. In the late 1980's and early 1990's, the Oregon legislature determined it was necessary to establish a water availability program in Oregon. The purpose of the program was to determine how much water was available for appropriation in any given stream. OWRD was tasked with developing a standard for determining and a methodology for calculating the availability of surface water for appropriation. (Test. of Cooper.)

85. OWRD developed a method to estimate the natural stream flow in watersheds throughout Oregon.[16] This method calculated the 80 percent exceedance flow using stream gauge data and a statistical methodology called regional regression analysis. The numerical model used to perform the statistical analysis consists of computer programs and various data sets available to OWRD. OWRD's method calculated the 80-percent exceedance flow based on mean daily flows. (Test. of Cooper; Ex. 280-OWRD-65.)

86. The exceedance stream flow statistic is an estimate of how often a given stream is expected to exceed a reported flow level. Therefore, an 80-percent exceedance flow indicates that a given rate of stream flow will be exceeded 80-percent of the time. Likewise, a 50-percent exceedance flow for a given stream indicates that stream flows therein will exceed the reported level at least 50-percent of the time. (Test. of Cooper; Ex. 280-OWRD-65.)

87. In 2002, Richard M. Cooper, PE,[17] developed a report entitled, Determining Surface Water Availability in Oregon (Open File Report SW 02-002), referred to herein as "Cooper

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[16] Natural stream flow refers to the estimated level of stream flow that would occur without consumptive or storage uses from the stream. Consumptive uses include withdrawals for irrigation, domestic, municipal, and other uses. Natural stream flow is also referred to as undepleted stream flow throughout this order.

[17] Richard Cooper is a Registered Professional Engineer and a Master of Agricultural Engineering. Mr. Cooper has over 20 years of experience as an agricultural engineer. OWRD employed Mr. Cooper as Natural

2002." Cooper 2002 describes the methodology employed by OWRD for determining surface water availability. (Exs. 280-OWRD-65 and 280-OWRD-69.)

88. In 2004, Mr. Cooper developed a report entitled, Natural Flow Estimates for Streams in the Klamath Basin (Open File Report SW 04-001), referred to herein as "Cooper 2004." Cooper 2004 applied the methodologies developed in Cooper 2002 to estimate natural 50-percent exceedance stream flows for watersheds in the Klamath Basin. (Test. of Cooper; Exs. 280-OWRD-65 and 280-OWRD-68.)

89. The estimates in Cooper 2004 used stream flow data from multiple sources including the United States Geological Survey (USGS), the United States Forest Service (USFS), and OWRD's own gauge measurements. The stream flow measurements were compiled in two hydrographics databases segregating mean daily flow measurements from miscellaneous (instantaneous) measurements. Cooper 2004 also utilized consumptive use information based on data from USGS and from OWRD's Water Rights Information System (WRIS), as well as various other data pertaining to characteristics of watersheds. OWRD analyzed watershed data using a Geographic Information System (GIS) developed by Environmental Systems Research Institute, Inc., called ARC/INFO 7.2.1. OWRD compiled all data available up through 1999. (Ex. 280-OWRD-65.)

90. OWRD established a base period of 1958 through 1987 for watershed measurements at index stations.[18] OWRD collected measurements for the base period from approximately 90 index stations. OWRD also collected measurements from numerous other gauges with shorter records than the index stations. OWRD was able to correct the short-term records to the base period so long as the two had a concurrent period of record. (Test. of Cooper; Exs. 280-OWRD-69 and 280-US-200.)

91. Use of a 30-year base period is the standard set by the World Meteorological Organization (WRO) to represent the normal range of conditions that exist at a given site. The USGS and other federal and state agencies follow the standard set by the WRO. (Exs. 280-OWRD-65 and 280-US-200; test. of Cooper.)

92. For watersheds without stream flow measurements available, OWRD utilized watershed characteristic data to develop regional regression equations used to estimate stream flows using the methodology identified in Cooper 2002. This data included nine different watershed characteristics including area, relief, slope, aspect, mean January and July precipitation, mean January maximum temperature, mean July minimum temperature, and soil permeability. This allowed OWRD to extrapolate stream flow estimates for watersheds upstream of a gauging station. (Exs. 280-OWRD-65 and 280-US-200.)

Resource Specialist 4 (Hydrologist) from 1992 until approximately 2009. Mr. Cooper maintained primary responsibility for OWRD's Water Availability Program during his employment. (Exs. 280-OWRD-67 and 280-OWRD-65.)

[18] A 30-year base period is typical for hydrologic analysis. The period selected here provided the greater amount of data regarding stream flows in the Klamath Basin. (Test. of Cooper at 54 through 56.)

93. A regional regression equation is a standard hydrologic technique that uses statistical regression models to estimate stream flow where flow data is not available. Such an equation is based on the premise that stream flow characteristics can be estimated from various watershed characteristics and can be quantified in a mathematical form. (Ex. 280-US-200.)

94. OWRD also used several computer programs, some written by Mr. Cooper, and other data to verify and/or correct stream flow estimates generated through regional regression analysis to match stream flows at downstream gauges. (Ex. 280-OWRD-65; test. of Cooper.)

95. Claimant BIA's expert, Michael Ramey, PE, reviewed OWRD's methodologies for estimating stream flows as well as its application of those methodologies to the Klamath Basin. Mr. Ramey compared OWRD's estimates of undepleted stream flow with those of the United States Bureau of Reclamation (USBR) and found OWRD's results to be reasonable. Finally, Mr. Ramey, and his staff, performed confirmatory analyses of undepleted flows and found a reasonable correlation between these results and those estimated by OWRD. Based on these findings, Claimants elected to adopt OWRD's stream flow estimates for the purposes of updating the claimed instream flows. (Ex. 280-US-200; test. of Ramey.)

96. Mr. Ramey, using OWRD's estimates as foundation, provided the hydrologic basis (water availability) for the updated claims and worked closely with ecologist David Chapin, Ph.D., and senior fisheries scientist Dudley Reiser, Ph.D., to develop the riparian and physical habitat claims. (Exs. 280-US-200. 280-US-300, and 280-US-400.)

97. Estimating undepleted stream flows is common in hydrology in situations where long-term gauge records are unavailable or limited or where such long-term records reflect depleted, rather than undepleted, flows. (Ex. 280-US-200.)

Development of physical and riparian habitat claims.

98. The physical habitat claims are intended to identify the monthly stream flows necessary for instream fish habitat in a given reach. Dr. Reiser, in conjunction with a team of fisheries biologists, aquatic ecologists, riparian ecologists, aquatic entomologists, water quality specialists, hydrologists and hydrologic engineers, developed the physical habitat claims after more than 20 years of scientific work on the project. (Exs. 280-US-200 and 280-US-400.)

99. The physical habitat claims are designed to ensure instream flows necessary to establish and maintain a healthy and productive habitat for fish species subject to the Tribes' treaty rights. In this context, habitat refers to the instream environment in which fish species exists throughout all stages of their life cycles as well as the surrounding environments (riparian) that provide material support to the instream environment. Instream environments provide living space, food, protection from predation, and spawning area. The riparian area bordering the stream contributes food, nutrients, cover, and shade protection for instream fish species. (Exs. 280-US-400, 280-US-485, and 280-US-300.)

100. Several of the treaty species are adfluvial species, meaning they spend most of their lives in the Upper Klamath Lake but migrate into streams for spawning purposes. Other

treaty species, like salmon, are anadromous salmonids, meaning they live their adult lives in saltwater environments but migrate up freshwater rivers and streams for spawning. Salmon species historically present in the basin migrated from the Pacific Ocean in order to spawn in the streams of the Upper Klamath Basin. (Exs. 280-US-400, 280-US-100, and 280-US-130.)

101. Sand and Scott creeks (Claims 635 and 636) each support populations of Redband trout that are unable to migrate to Upper Klamath Lake due to loss of connectivity between these streams and the lake. Consequently, these fish species experience their entire lifecycle within the streams. These creeks are connected to each other via a manmade irrigation canal. (Ex. 280-US-400.)

102. A healthy and productive physical habitat must provide sufficient water to meet the needs of fish species in a manner that permits fish to exist in stable condition and reproduce in order to provide a sustainable population. To accomplish this, the physical habitat must have sufficient flows to support all lifestages of treaty species including spawning, egg incubation, fry, juvenile, and into adulthood. At present, the abundance of most treaty species has been severely diminished due, in part, to reduced streamflows in the Upper Klamath Basin. Currently, most treaty fish species are not capable or supporting any kind of harvest practice. (Exs. 280-US-400 and 280-US-485, see also, 280-US-402.)

103. Dr. Reiser developed habitat-flow relationships using the Instream Flow Incremental Methodology coupled with Physical Habitat Simulation models (IFIM/PHABSIM). This methodology allowed Dr. Reiser to ascertain the relationship between the quantity of fish habitat in the stream and the amount of water in the stream. The Physical Habitat Simulation system is an integrated collection of hydraulic and microhabitat simulation models designed to quantify the amount of microhabitat available for a target species over a wide range of stream flows. Dr. Reiser determined this methodology was appropriate for runoff-dominated as well as spring-dominated streams within the basin. (Exs. 280-US-200 and 280-US-400.)

104. IFIM/PHABSIM is a common method used by fisheries biologists to evaluate the incremental change in both quantity and quality of fish habitat with stream flow change. This method also evaluates habitat quantity and quality for the various life stages of the target species. IFIM/PHABSIM accomplishes this by combining information and data pertaining to physical and hydraulic characteristics of a stream with information that describes the habitat preferences of different fish species and lifestages. Dr. Reiser used the IFIM/PHABSIM methodology to develop both species and lifestage-specific relationships between habitat and flow (habitat-flow relationship). Dr. Reiser applied this method to all claims with the exception of Claim 649. (Exs. 280-US-200, 280-US-221, 280-US-400, and 280-US-485; test. of Ramey.)

105. Because data collection was not possible for Claim 654, Dr. Reiser used the Tennant Method to develop the physical habitat claim. The Tennant Method is a hydrologic-based approach to determining instream flow needs. This method projects fish habitat needs based on a percentage of the average annual flow for a stream reach. Dr. Reiser and Mr. Ramey utilized stream flow data provided by OWRD, in Cooper 2004, as a basis for the Tennant Method calculations. (Exs. 280-US-200 and 280-US-400; test. of Ramey.)

106. In a habitat-flow relationship, the amount of physical habitat typically increases as stream flow increases until a peak value is reached. Thereafter, higher stream flows can result in a reduction in the quantity of habitat. In this case, Dr. Reiser found the habitat-flow relationships for certain claims indicated the amount of productive physical habitat continued to increase as stream flow increased, with no apparent peak value. Dr. Reiser and Mr. Ramey observed this continuing increase at modeled stream flows higher than those typically found in the streams at issue. Dr. Reiser and Mr. Ramey, therefore, decided it was necessary to limit or cap the claims for each stream reach. Dr. Reiser determined the monthly median stream flows (50-percent exceedance value), calculated by Mr. Ramey, would be an appropriate cap for each claim for physical habitat. (Exs. 280-US-200 and 280-US-400; test. of Ramey.)

107. Use of the IFIM/PHABSIM methodology required extensive data collection. To accomplish this, Dr. Reiser followed a detailed nine-step process to ensure sufficient information necessary to support the physical habitat claims.[19] (Ex. 280-US-400).

108. Both the 1999 Amended Claims and the updated claims presented in 2009 used IFIM/PHABSIM as a basis for claimed flows. Between 1999 and 2009, Dr. Reiser and Mr. Ramey continued to collect data from existing and newly established study sites, and obtained new information on water availability in the basin, primarily from Cooper 2004. Based on this new information, Dr. Reiser and Mr. Ramey were able to update the claims to reflect lower instream flows. The updated claims are either lower than, or equal to, the 1999 Amended Claims. Dr. Reiser determined the instream flows reflected in the updated physical habitat claims are sufficient to provide healthy and productive habitats within the streams. Dr. Reiser also concluded these levels meet, but to do not exceed, the habitat needs of the target fish species. (Exs. 280-US-300, 280-US-320, 280-US-400, and 280-US-485.)

109. The updated claims present two components of the claimed flows; physical habitat flows and conditional physical habitat flows. The physical habitat flows are based upon the needs of treaty species present in the basin at this time. The conditional habitat flows are based upon the needs of anadromous species that have been extirpated from the basin. Because efforts are underway to reintroduce such species into the basin, Claimants determined it was necessary to claim flows sufficient to create a healthy and productive habitat to support anadromous fish traditionally relied upon by the Tribes. Claimants intend the conditional physical habitat claims to become effective only upon successful reintroduction of anadromous

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[19] Dr. Reiser identifies the nine steps as follows:

Step 1- Identification and Selection of Claim Reaches and Study Sites;
Step 2- Selection of Target Fish Species;
Step 3- Determine Species Distribution and Lifestage Periodicity;
Step 4- Lifestage and Species Prioritization;
Step 5- Development of Species Habitat Suitability Criteria (HSC) Curves;
Step 6- Field Data Collection;
Step 7- Instream Flow Hydraulic and Habitat Modeling;
Step 8- Hydrologic Limitations- Median Flow Threshold; and
Step 9- Other Flow Considerations- Limitation of 1999 Amended Flow Claim.

(Ex. 280-US-400 at VII-8 through VII-9.)

species, such as Chinook salmon, into the basin. The conditional physical habitat claims only apply during months when anadromous species are likely to utilize streams in the basin for migration to and from spawning/rearing habitats. (Ex. 280-US-400.)

110. The riparian habitat is the zone of direct interaction between terrestrial and aquatic environments, or the vegetation adjacent to a stream that depends on water from the stream. Riparian vegetation provides necessary functions to a stream's ecosystem. These include providing shade and cover for fish, stability along the stream bank, and organic matter that serves as food for various organisms within the stream. Such vegetation is also crucial in controlling stream temperatures. Healthy riparian vegetation is essential to ensure high quality fish habitat within the stream. (Exs. 280-US-300 and 280-US-400; test. of Chapin.)

111. Certain riparian habitats benefit from periodic, springtime, inundation caused by flows that exceed the streams capacity and overflow the stream channel. These high, or flood, flows scour the floodplain creating open sites for riparian plant seedlings to germinate. These flows also deposit beneficial sediments from the stream channel onto the floodplain. In addition, high flows replenish moisture in riparian soils that are important for the continued growth and maturity of riparian plants. High flows also serve to extinguish noxious weeds that may be harmful to riparian plant species. (Exs. 280-US-300 and 280-US-200; test. of Chapin.)

112. The riparian habitat claims are intended to identify the monthly stream flows necessary to establish and sustain a healthy and productive riparian habitat for fish, wildlife, and plant species subject to the Tribes' treaty rights. Healthy riparian vegetation is dependent on water from the adjacent stream or from alluvial aquifers directly associated with the stream. To determine the flows necessary to establish and sustain healthy and productive riparian habitats, David Chapin, Ph. D., performed two studies within the basin, a cottonwood tree ring study and a riparian high flow study. (Exs. 280-US-200, and 280-US-300; test. of Chapin.)

113. Dr. Chapin determined the streams within the basin fell into two categories; spring dominated and runoff dominated. Spring-dominated streams are those that rely primarily on underground springs for instream flows. In contrast, runoff-dominated streams rely primarily on precipitation and snowmelt for instream flows. Dr. Chapin further divided the runoff-dominated streams into those with floodplains and those without floodplains due to steep gradients and/or narrow channel widths. (Exs. 280-US-200 and 280-US-300; test. of Chapin.)

114. To determine the amount of water necessary to establish and maintain a healthy and productive riparian habitat, Dr. Chapin conducted a study of cottonwood tree rings at selected sites in the basin (cottonwood study). Dr. Chapin selected black cottonwood trees as an indicator of riparian habitat health and productivity. The use of indicator species as surrogates for ecological conditions is a common practice in ecology and recognized by the Environmental Protection Agency (EPA). Dr. Chapin determined cottonwood trees to be representative of ecological conditions in the basin based upon several factors including their importance to the riparian environment in many parts of the basin and their close relationship to willows, which exist in large numbers throughout most riparian environments in the basin. (Exs. 280-US-300 and 280-US-200; test. of Chapin.)

115. Dr. Chapin determined that the relationship between growth and stream discharge should be similar for cottonwoods and willows due to similarities in vegetative and reproductive characteristics. Willows are generally more sensitive to decreases in stream discharge than are cottonwoods. As such, Dr. Chapin determined that the use of cottonwoods would be a reasonable, albeit conservative, indicator for estimating riparian habitat flow requirements. Dr. Chapin also determined it was appropriate to use cottonwood trees as a surrogate for riparian environments in the basin where cottonwoods were not present. This was based, in part, on the presence of willows throughout those riparian environments. Dr. Chapin also selected cottonwood trees because they are the only riparian species in the Upper Klamath Basin that retains a long enough record of growth that can be related to stream discharge. (Ex. 280-US-300; test. of Chapin.)

116. Between December 2000 and September 2003, Dr. Chapin extracted core samples from the trunks of several cottonwood trees at various test sites within the basin. Dr. Chapin then measured the tree ring width using the core samples and analyzed these widths in response to several variables including stream discharge, precipitation, and temperature. Dr. Chapin determined stream discharge was generally the most important environmental factor influencing the growth of cottonwoods at the test sites. From this data, Dr. Chapin was able to determine reduced stream flows between the months of April through September reduce the health of riparian environments in the basin. (Exs. 280-US-300, 280-US-315 through 280-US-319; test. of Chapin.)

117. Based upon the cottonwood study, Dr. Chapin determined the stream flows needed for a healthy riparian habitat. Specifically, Dr. Chapin concluded all stream reaches in this case required a minimum flow equal to 66-percent of the monthly median flows during the months of March through November. This conclusion serves as the basis for the updated base flow claims. (Exs. 280-US-200 and 280-US-300; test. of Chapin.)

118. To determine the high flow requirements for riparian habitats in the basin, Dr. Chapin examined the distribution of riparian plant communities in relation to elevation above the stream channel. By determining how high above the stream channel riparian plant communities occur, Dr. Chapin was able to determine the magnitude of high flows associated with upper limit of riparian vegetation in the basin. Dr. Chapin selected study sites with relatively healthy riparian habitats that were relatively undisturbed by land-use practices. Ultimately, Dr. Chapin selected five study sites on run-off dominated streams with floodplains. (Exs. 280-US-300, 280-US-302 through 280-US-314, and 280-US-200; test. of Chapin.)

119. Dr. Chapin measured and recorded elevation and, along with Mr. Ramey, collected hydrologic data necessary to establish a relationship between stream flow and water surface elevation. To accomplish this, Dr. Chapin and Mr. Ramey utilized the Hydrologic Engineering Center's HEC-2 modeling program. Dr. Chapin and Mr. Ramey also obtained data from long-term stream gauges maintained by the United States Geological Survey (USGS) and the United States Forest Service (USFS). (Exs. 280-US-200 and 280-US-300.)

120. Based on the riparian high flow study, Dr. Chapin concluded that certain stream reaches, specifically those dominated by runoff from precipitation and/or snowmelt and having

an identifiable floodplain, required flood flows during the spring months in order to maintain a healthy riparian habitat. Accordingly, Dr. Chapin developed a high flow (flood flow) claim for each runoff-dominated stream with a floodplain. (Exs. 280-US-200 and 280-US-300; test. of Chapin.)

121. Dr. Chapin, in conjunction with Mr. Ramey, calculated the high flow, or flood flow, component of the riparian habitat claims. These claims were extrapolated from data collected at the sample sites selected for the high flow study as well as data gathered from USGS and USFS long-term gauges. For each of the sample sites, Dr. Chapin determined the level of water, outside the banks of the stream, necessary to maintain the riparian plant communities in the floodplain. Mr. Ramey then calculated how often the identified level of water is expected to occur. Mr. Ramey determined the necessary level of water occurs, on average, once every 3.4 years. Dr. Chapin and Mr. Ramey then determined a comparable flow for each runoff-dominated stream reach by estimating the 3.4-year peak flow for that reach. (Exs. 280-US-200 and 280-US-300; test. of Ramey and Chapin.)

122. Where a high flow is claimed, the claim period is limited to springtime runoff months (typically March through June) of each year. These claims are triggered by flows sufficient to cause a given stream to exceed its banks and flow onto the floodplain at a specified rate. Generally, these flows have a recurrence interval of 1.5 years. The high flow claims are capped by the 3.4-year peak flow, or cap, estimated by Dr. Chapin and Mr. Ramey. These claims are superimposed upon the base flows and do not add to the claimed base flows. (Exs. 280-US-200 and 280-US-300; test. of Chapin and Ramey.)

123. The high flow claims are designed to preserve natural inundation of the floodplains up to the point where flows reach the 3.4-year cap as well as the point where water recedes from the 3.4-year cap back down to the 1.5-year flood flow that serves as the trigger for the claims. The high flow claims do not claim flows between the base flow and the trigger. Nor do they encompass flows in excess of the 3.4-year cap. (Exs. 280-200 and 280-US-300; test. of Chapin and Ramey.)

124. The updated physical, including conditional claims, and riparian habitat, including the base flow and high flow claims are represented in Table X-1 of the Affidavit and Direct Testimony of Dudley W. Reiser and incorporated by reference as Attachment A to this order. (280-US-400 at X-3 through X-5.)

CONCLUSIONS OF LAW

1. The claimed instream flows are necessary to establish a healthy and productive habitat to allow the exercise of the Klamath Tribes' hunting, fishing, trapping, and gathering rights guaranteed by the treaty of 1864.

2. Claimants' are entitled to claim instream flows outside the boundaries of the former reservation for Claims 650, 651, 654, 655, 656, and 657, as well as off reservation portions of Claims 647 and 652 in order to fulfill the purposes of the reservation.

3. The Tribes' treaty rights have not been extinguished on lands no longer owned by the Tribes.

4. The Klamath Restoration Act of 1986 did not limit the restoration of the Tribes' treaty rights on former reservation land.

5. A determination of whether Claimants must subordinate their claims based upon stipulated agreements to settle other claims in this adjudication is inappropriate in this order.

OPINION

I. Burden of proof.

The parties in this matter have spent significant amounts of time arguing various interpretations and applications of the burdens of proof applicable to this and other cases involving Claimants' instream water rights claims. Much of this argument stems from competing interpretations of the district court's opinion in *United States v. Adair*, 478 F. Supp. 336 (1979) (*Adair I*), the Ninth Circuit's opinion in *United States v. Adair*, 723 F. 2d 1394 (1983) (*Adair II*), and the Amended Order on Motions for Rulings on Legal Issues (Amended Order) issued by Administrative Law Judge Maurice "Skip" Russell on February 12, 2007.

As a starting point, in a contested case hearing, the proponent of a fact or position has the burden of proving that fact or position by a preponderance of the evidence. ORS 183.450(2) and (5); *Harris v. SAIF*, 292 Or 683, 690 (1982) (general rule regarding allocation of burden of proof is that the burden is on the proponent of the fact or position); *Cook v. Employment Div.*, 47 Or App 437 (1980) (in absence of legislation adopting a different standard, the standard in administrative hearings is preponderance of the evidence). Proof by a preponderance of the evidence means that the fact finder is convinced that the facts asserted are more likely true than false. *Riley Hill General Contractor v. Tandy Corp.*, 303 Or 390 (1987).

1. Burden of proof under ORS Chapter 539 and the Administrative Procedures Act.

In addition to the general standards of proof identified above, OWRD has expressly stated the allocation of the burden with regard to claims in this adjudication. The burden of establishing a claim to water in the Klamath Basin lies with the claimant whose claim is contested. ORS 539.110. A claimant of a water right must establish their claim by a preponderance of the evidence. OAR 690-0028-0040(1).

Contestants argue Claimants, in order to satisfy their burden, are required to quantify the Tribes' resource needs and show water claimed is necessary for the current exercise of the Tribes' treaty rights. I cannot agree.

Contestants' arguments advocate for the application of a burden of proof that exceeds the scope of this adjudication. As identified more fully below, the purpose of this adjudication is limited to the quantification of the Tribes' instream water rights necessary to fulfill the purposes of the reservation established by the Treaty of 1864. Limitations of that water right based on use

of resources are beyond the scope of this adjudication and must be addressed, if at all, by a court of competent jurisdiction.

Likewise, to require Claimants to demonstrate the Tribes' "current exercise" of its treaty rights would exceed the scope of this adjudication and be extremely unhelpful. It is my opinion that the "as currently exercised" language found in the *Adair* line of cases and relied upon by UBC refers to the moderate living standard articulated by the court in *Adair II*. As discussed more fully below, the moderate living standard has no application to the quantification of the instream water rights at issue here; at least not at this stage.

Pursuant to the above statues and rules, Claimants have the burden to establish their claims by a preponderance of the evidence. Failure to support the claims with reliable, probative, and substantial evidence is detrimental to such claims. See ORS 183.450(5). Having identified Claimants' burden is not, however, the end of the discussion.

Contestants also have concurrent burdens in this matter. The evidence in these proceedings is confined to the subjects identified in the timely filed notice(s) of contest. *See*, ORS 539.110. Contestants are the proponents of each fact or position raised in the contests. As such, Contestants must present evidence to support each fact or position so raised. This burden of proof encompasses two burdens, the burden of production and the burden of persuasion. *Marvin Wood Products v. Callow*, 171 Or App 175 (2000) (Conceptually, the burden of proof encompasses two distinct burdens: the burden of producing evidence of a particular fact (*i.e.*, the burden of production), and the burden of convincing the trier of fact that the alleged fact is true (*i.e.*, the burden of persuasion)). To allow Contestants to assert contest grounds without supporting such contests with reliable, probative, and substantial evidence would be antithetical to the statutes and rules governing contested case proceedings generally and this adjudication specifically.

2. The "moderate living" standard and its applicability to the quantification of instream water rights claimed by the Klamath Tribes and the United States Bureau of Indian Affairs.

Throughout this adjudication, the parties have struggled with quantification standards and the application of the "moderate living" standard articulated by the court in *Adair II*. After much deliberation, I find the moderate living standard is inapplicable to this adjudication. On this point, I find myself in agreement with United States District Judge Owen Panner, as well as ALJs Barber and Russell. Judge Panner addressed the quantification standards and the moderate living standard in *United States v. Adair*, 187 F. Supp. 2d 1273 (2002) (*Adair III*), later vacated on ripeness grounds. While *Adair III* is not binding upon the parties, I find Judge Panner's opinion provides instructive guidance on these and other issues relevant to the resolution of the claims before me.

In *Adair III*, Judge Panner declared:

> [T]he assertion that the tribes are entitled only to some "minimum amount" of water is an incorrect statement of the law. In quantifying the right under *Adair I*,

> the Tribe is entitled to "whatever water is necessary to achieve" the result of supporting productive habitat. [Citation to *Adair I* omitted]. *Once the adjudicator has quantified the Tribes' water rights under the principles announced in Adair I, the moderate living standard may be considered.*
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> * * * * *
>
> Under the traditional application of the moderate living standard, the initial quantification of a reserved right may be limited "if tribal needs may be satisfied by a lesser amount." [Citation to *Fishing Vessel* omitted]. However, this case is unlike Fishing Vessel where the reserved right could be reduced without completely frustrating the purpose of the reservation. For example, if the tribes' 50% allocation of the harvestable fish run at issue in Fishing Vessel would have been reduced to a 35% allocation, the reserved right would still survive after the reduction. In contrast, the Klamath Tribes' reserved water right does not readily lend itself to such a reduction. *Ultimately, the water level cannot be reduced to a level below that which is required to support productive habitat,* and the Tribes are entitled to "whatever water is necessary to achieve" the result of supporting productive habitat. * * * Reducing the water below a level which would support productive habitat would have the result of abrogating the reserved rights.

Adair III, 187 F. Supp 2d at 1280 (emphasis added). Judge Panner correctly points out that application of the moderate living standard might be appropriate, but only *after* the adjudicator has quantified the Tribes' water rights. As such, I believe this is an issue for resolution by the United States District Court or other court of general jurisdiction, not this tribunal.

The application of the moderate living standard would require economic and social analyses beyond the scope of this adjudication. It would likely require a year-by-year analysis of the Tribes' harvest of treaty resources in conjunction with other, possibly innumerable economic resources available to each individual tribal member. The moderate living standard presents a question of "take" of treaty resources, not of quantity of available resources. It would be difficult, if not impossible, to apply the moderate living standard to the quantification of the Tribes water rights. It is possible the Tribes may exceed a moderate living through exploitation of treaty resources; nonetheless, I cannot envision a level of water in the Klamath Basin that would trigger such excess. Because the water rights at issue are non-consumptive, water allocated by such rights is not a resource to be directly exploited by the Tribes. Instead, it is the means by which healthy and productive instream and riparian habitats will be created and maintained to enable the Tribes to exercise their treaty rights.

A healthy and productive habitat may exist independent of the quantity of treaty resources harvested from it. The Tribes' harvest practices, not the water right established herein, will drive their "take" of a given resource. Regardless of the take of a given treaty species necessary to provide the Tribes with a moderate living, the fact remains that the Tribes are entitled to a sufficient quantity of water to fulfill the purposes of the reservation, to wit, the exercise of the Tribes hunting, fishing, trapping, and gathering rights. This requires sufficient water to maintain a healthy and productive habitat for all treaty species subject to harvest. The

amount at which harvest of a given treaty species may cause the Tribes to exceed a moderate living standard is irrelevant to the quantification of water necessary to provide a healthy and productive habitat. As such, it is beyond the scope of these proceedings. The moderate living standard serves as a measure of the limits of the Tribes' take of treaty resources. It is not, contrary to UBC's assertions, the appropriate measure of a water right necessary for a healthy and productive habitat. Such considerations are beyond the scope of these quantification proceedings.

II. Sufficiency of Claimants' proof.

Next, Contestants argue Claimants' proof is insufficient to establish the basis for a decree of water rights because it lacks the level of specificity demanded by UBC. I do not agree. Claimants have submitted substantial scientific data supporting each of the elements of the claimed water rights. Claimants' evidence is the product of several years of study and modeling by a riparian habitat expert (Dr. Chapin), an expert fish biologist (Dr. Reiser). In addition, Claimants' have submitted substantial evidence to support their decision to adopt stream flow estimates provided by OWRD after extensive review by an expert in hydrologic engineering with over 30 years of experience (Ramey, P.E.). As discussed below, these data are the product of more than 30 years of collection and analysis by expert hydrologists employed by OWRD and tasked with establishing accurate estimates of stream flows within the Klamath Basin.

In addition to the scientific evidence presented, Claimants have provided significant historical data to support the claimed treaty resources associated with claimed instream flows. This data focused on the historical use of identified treaty resources found both instream and in the surrounding riparian habitat. Such historical resource use data derives not only from Tribal members (Mitchell and Chocktoot) but also from an historian with numerous years of expertise in Native American tribes of the Western United States (Hart).

Contestants' arguments for a greater level of specificity in proof, than that offered by Claimants, essentially advocates for a standard of proof that exceeds a preponderance of the evidence. As discussed above, the standard applicable to this adjudication is proof by a preponderance of the evidence. Contestants provide no legal basis for deviating from this standard of proof. As such, Claimants' evidence is sufficient to prove their claims if it establishes such claims by a preponderance of the evidence. No greater level of proof will be required in this adjudication.

III. Updated claims.

At the hearing, Contestants argued Claimants impermissibly amended the claims by changing the methodology used to calculate instream flow requirements. Contestants asserted this information was not raised in the Amended Contests because it was unknown to Contestants until Claimants filed their written direct testimony and exhibits in December 2010.

As an initial matter, it is important to distinguish between alterations to claims that constitute amended claims and those that simply update claims previously filed. UBC contends that, by changing the basis for and reducing the claimed flows, Claimants have presented

amended claims in violation of the applicable statutes and administrative rules. Claimants assert, and OWRD agrees, that the lower claimed flows constitute nothing more than a partial withdrawal of the previous claimed flow. UBC does not contend that withdrawal of a claim, in whole or in part, is impermissible under the applicable laws and rules.

UBC relies on ORS 539.040(3)(a) and OAR 690-028-0027 to support its arguments against the claimed amounts set forth at the hearing. Unfortunately for UBC, these arguments find no support in the text of the statute or rule.

ORS 539.040(3)(a) provides, in relevant part:

> For purposes of the Klamath Basin adjudication * * * the claimant or owner shall present in writing all of the particulars necessary for determination of the right of the claimant or owner to contest the claims of others or to the use of the waters of a stream to which the claimant or owner lays claim.

OAR 690-028-0027 provides, in part:

> * * * * *
>
> (2) A claimant shall provide supporting documentation of the methods used to estimate water quantities needed to satisfy the purpose or purposes of the reservation. Accepted methodologies for determining habitat needs include, but are not limited to:
>
> (a) Instream Flow Incremental Methodology habitat suitability curves published in a series of technical reports by the U.S. Fish and Wildlife Service;
>
> (b) The Oregon Method developed by the Oregon State Game Commission * * *;
>
> (c) Forest Service Method developed by the Pacific Northwest Region USDA Forest Service, * * *; and
>
> (d) Environmental Basin Investigation Reports conducted by the Oregon State Game Commission between the mid-1960's and the mid-1970's.

ORS 539.040(3)(a) requires, *inter alia*, that a claimant provide sufficient information to allow OWRD to make a determination of the water right claimed, while the relevant portion of OAR 690-028-0027 requires a claimant provide documentation supporting the method used to calculate the claim. Neither of these provisions prohibits either a change in methodology or the submission of additional proof of claim at hearing.

UBC also relies on ORS 539.210 and OAR 690-030-0085. At first blush, UBC's arguments might find more traction under the provisions cited. A careful reading, however, coupled with OWRD's interpretation of the applicable rule, reveals UBC's arguments lack merit.

ORS 539.210 provides, in relevant part:

> Whenever proceedings are instituted for determination of rights to the use of any water, *it shall be the duty of all claimants interested therein to appear and submit proof of their respective claims, at the time and in the manner required by law.* Any claimant who fails to appear in the proceedings and submit proof of the claims of the claimant shall be barred and estopped from subsequently asserting any rights theretofore acquired upon the stream or other body of water embraced in the proceedings, and shall be held to have forfeited all rights to the use of the water theretofore claimed by the claimant.

(Emphasis added.)

While it is true the cited statute places certain requirements and limitations on claim filings, nothing in the statue prohibits complete or partial withdrawal of claims. Further, the statute does not prohibit a claimant from developing and presenting additional evidence or proof of their respective claims. Rather, in the context of this adjudication, the statute requires presentation of proof sufficient to establish *prima facie* evidence of a claim. This interpretation is supported by the general scheme of the Klamath Basin Adjudication and the administrative rules governing the filing of statements and proofs of claims.

ORS Chapter 539 governs the determination of pre-1909 water rights as well as water rights of federally recognized Indian tribes. As such, it establishes a framework for determining such rights on a stream-wide, or basin-wide, approach. As applied to the current adjudication, this chapter has been interpreted to require a claimant to submit a statement of claim along with enough evidence to allow OWRD to issue a Preliminary Evaluation (PE) of claim. Once OWRD has issued the PE, a contest period is opened to allow any interested party to file a contest to the claimed water right, *or* the PE. Therefore, a claimant who disagrees with the PE can file a contest to dispute the findings of OWRD. Contests filed within the prescribed period result in a contested case hearing at which a claimant is required to present evidence to support his or her claim, and contestants are entitled to present evidence in support of their contest(s). See, ORS 539.90 through 539.110.

If UBC's interpretation of the statute were to be accepted, the only opportunity for a claimant to present evidence in support of his or her claim would be at the time of filing the initial claim. This interpretation finds no support in the statute, the rules, or prior proceedings in this adjudication. In fact, such an interpretation would make contests of the PE, by a claimant, impermissible because no new evidence would be accepted by OWRD. This has not been the practice for individual claimants, many of whom now constitute the UBC, seeking to establish water rights. Instead, all claimants seeking to prove a claimed water right have been permitted to submit any relevant evidence at hearing.

In this matter, Claimants continued to gather and analyze data after the close of the contest period in order to support their claims in a contested case hearing. In the process, Claimants were able to refine many of the claims in such a way that reduced the amount of water claimed in a particular stream. Accordingly, at the hearing, Claimants updated their claims to

reflect no greater amount than they were able to prove at hearing. Nothing in ORS 539.210 prohibits such claim refinement. Interestingly, UBC argues against this approach while simultaneously arguing Claimants' obligation to prove the amount of water claimed is the minimum amount necessary.

Finally, OAR 690-030-0085 governs amendments or alterations of claims and provides, in relevant part:

> (1) * * * [T]he Water Resources Director (Director) may not permit any alteration or amendment of the original claim after the period for inspection has commenced; but any new matter that the claimant may wish to set forth must be set forth in the form of an affidavit, regularly verified before a proper officer and filed with the Director prior to the close of the period for public inspection.

UBC asserts this provision prohibits any modification of the claims after the inspection period. Claimants and OWRD disagree. OWRD acknowledges the cited rule does prohibit claim amendments after the inspection period. Nonetheless, OWRD does not interpret the cited provision as prohibiting downward adjustments to claims because it does not view such adjustments as claim amendments. Rather, OWRD views downward adjustments to a claimed water right to be a partial withdrawal of the claimed water right. (OWRD Closing Argument at 6 and 7.) In this instance, OWRD's interpretation is entitled to deference.

An agency's interpretation of its own validly promulgated administrative rule is entitled to deference unless "inconsistent with the wording of the rule itself, or with the rule's context, or with any other source of law * * *." *Don't Waste Oregon Com. v. Energy Facility Siting*, 320 Or 132, 142, 881 P2d 119 (1994). Pursuant to *Don't Waste Oregon*, an agency's interpretation is erroneous and therefore not entitled to deference only if it is: 1) implausible; 2) inconsistent with the wording of the rule; 3) inconsistent with the context of the rule; or 4) inconsistent with any other source of law. *Don't Waste Oregon*, 320 Or at 142.

Here, OWRD's interpretation of OAR 690-030-0085 cannot be said to be inconsistent with the wording or context of the rule, or with any other source of law. In essence, OWRD interprets "alteration or amendment of the original claim" to apply to amendments that change a claim in such a substantial way that they essentially create a new claim (i.e., alterations claiming a more senior priority date, claiming a longer season of use, or claiming a greater amount of water, etc.). OWRD does not interpret the quoted phrase to prohibit downward adjustments of the original claim. Read in context of ORS Chapter 539 and OAR Chapter 690, OWRD's interpretation is plausible and consistent.

Beneficial use is the basis, the measure, and the limit of all water rights in Oregon. ORS 540.610(1). Beneficial use is defined as, "[r]easonably efficient use of water *without waste* for a purpose consistent with the laws and the best interests of the people of the state." OAR 690-250-0010(3), emphasis added. The laws and rules applicable to this adjudication, and water rights generally, require a claimant prove his or her ability to beneficially use the amount of water claimed. To adopt UBC's interpretation would require Claimants to claim a water right in excess

of the amount they may be able to put to beneficial use. This is inconsistent with the context of ORS Chapter 539 and Oregon water law generally.

To the extent Claimants' updated claim constitute partial withdrawal of earlier claimed flows, they are not prohibited by statute or rule in this adjudication.

IV. OWRD's stream flow estimates are the most reliable source of data available for the Klamath Basin.

Contestants assert stream flow estimates provided by OWRD in this matter are insufficient to establish the basis for the claimed instream flows. Instead, Contestants advocate for the use of either individual (or spot) measurements or for adoption of measurements conducted by USBR. Contestants appear to argue OWRD was required to take physical measurements of each stream and reach in the basin. As discussed herein, to do so would be neither practical nor helpful in this adjudication.

ORS 539.120 imposes upon OWRD, the obligation to obtain a "measurement of the discharge of a stream." The parties in this matter are at odds over the form such measurement must take. UBC assert that such measurement must consist of actual spot measurements of each stream and reach at issue. OWRD and Claimants take the position that the term "measurement" in this case may consist of estimates of stream discharge or flow. As discussed more fully herein, I find myself in agreement with OWRD and Claimants on this issue.

The statute provides no definition of the term "measurement," therefore one must begin with the plain, ordinary meaning of the term. *PGE v. Bureau of Labor and Industries,* 317 Or 606, 611 (1993) ("[W]ords of common usage typically should be given their plain, natural, and ordinary meaning."). The usual source for determining the ordinary meaning of statutory terms is a dictionary of common usage. *State v. Murray,* 340 Or 599, 604, 136 P3d 10 (2006) ("Absent a special definition, we ordinarily would resort to dictionary definitions, assuming that the legislature meant to use a word of common usage in its ordinary sense.").

In this case, the dictionary provides multiple definitions of the term "measurement" including, "**1**: the act or process of measuring something. **2 a**: a figure expressing extent that is expressed by measuring; **b**: an area, quantity, degree, or capacity obtained by measuring." *Webster's Third New Int'l Dictionary* 1400 (unabridged ed 2002). "Measuring" is the present participle of the verb "to measure." Therefore, one must look to the definition of the root term, "measure." Here, the dictionary again provides multiple definitions of the verb form of "measure" including, "**4 a**: to ascertain the quantity, mass, extent, or degree of in terms of a standard unit or fixed amount usu. by means of an instrument * * *; **b**: to compute the size of (an area, object) from dimensional measurements * * *[.]" *Ibid.*

In the context of ORS 539.120, it appears most appropriate to adopt a definition of the term "measurement" that requires OWRD to ascertain the quantity of discharge in the subject stream. The means by which OWRD accomplishes this task must also be examined in context of the statute.

As previously discussed, ORS Chapter 539 governs the determination of pre-1909 water rights as well as water rights of federally recognized Indian tribes. Such rights are generally determined for a particular season of use, depending upon the claimed use of water. Accordingly, it is important for OWRD, as the agency responsible for managing all water in Oregon, to develop an understanding of how much water is available in a given stream throughout the year. Instantaneous, or spot, measurements, while accurate as to place and time of those particular measurements, are ill suited for the purposes of determining stream-wide, year-round discharge rates. To the contrary, exceedance flow calculations provide a greater range of information and were determined to much more useful for these purposes. (See, Test. of Cooper at 36.) In this instance, OWRD ascertained the quantity of discharge of the streams through the use of methodologies developed and/or implemented by Mr. Cooper. These included long-term and short-term gauge measurements, computer modeling, and the use of statistical analyses including regional regression. I find these methods constitute measurements within the context of ORS 539.120.

Next, UBC asserts OWRD's streamflow estimates are unreliable and, therefore, cannot serve as the basis for the claimed flows. UBC advocates for the adoption of streamflow measurements found in USBR's *Natural Flow of the Upper Klamath River* (2005). Claimants and OWRD argue the Department's measurements are reliable and entitled to substantial deference in this matter. Again, I must agree with Claimants and OWRD on this issue.

Oregon courts have an extensive history of reliance upon OWRD's technical expertise, and that of its predecessors, in matters relating to the adjudication of water rights. See, *In Re Water Rights in Silvies River*, 115 Or. 27 (1925) and *In Re Waters of Deschutes River*, 165 Or. 435 (1940) (the findings of the state engineer are entitled to a presumption of correctness.). As identified above, OWRD is tasked, by statute, with measuring the discharge of a stream subject to adjudication. In this capacity, the courts defer to state agency as "the expert on the spot." *Deschutes River*, 165 Or. at 463, citing *Moyer v. Peabody*, 212 US 78 (1909).

Cooper 2004 provides comprehensive estimates of water availability throughout the entirety of the Upper Klamath Basin. This report is the result of several years of work compiling more than three decades of streamflow data. Cooper 2004 and its underlying methodologies were subjected to peer-review prior to adoption by OWRD. In addition, Claimants' expert hydrologic engineer performed an independent analysis of the methodologies in Cooper 2004 to determine whether the results were reasonable and reliable prior to adopting these results as a basis for the updated claims. While not a party to this adjudication, OWRD has made its methods and measurements available to all parties in order to facilitate resolution of the claims and contests. Contestants have presented no evidence indicating bias on the part of OWRD or, specifically, the results in the Cooper 2002 or 2004 reports. With regard to streamflow measurements and methodologies presented by OWRD, I find no reason not to defer to the Department as "the expert on the spot."

Based on the evidence presented, I find OWRD's estimates of streamflow in the Klamath Basin, contained in Cooper 2004, satisfy the Department's obligations under ORS 539.120. Further, I OWRD's estimates of streamflow are entitled to deference in this matter. UBC has failed to demonstrate, by a preponderance of the evidence, that such measurements are incorrect

or that the alternatives presented are entitled to greater weight. Accordingly, I find Claimant's reliance upon the estimates and methodologies contained in the Cooper 2002 and Cooper 2004 reports, as a basis for the claimed flows, to be reasonable.

V. Claimants have demonstrated certain instream flow levels are necessary to establish and maintain a healthy and productive habitat for treaty species.

As identified throughout this order, the purpose of this adjudication is the quantification of water rights within the Klamath Basin. Specifically at issue here is the quantification of the Tribes' instream water rights on former reservation land within the basin. Such water rights are limited by the amount of water necessary to allow the Tribes to exercise their treaty protected hunting, fishing, trapping, and gathering rights. This amount has been interpreted, throughout this adjudication, as the amount of water necessary to establish and maintain a "healthy and productive habitat that will enable the Tribes to exercise their aboriginal rights." (Amended Order at 16.)

The Tribes' aboriginal rights apply to those species of fish, fowl, wildlife, and plants traditionally or historically relied upon by the Tribes for subsistence, cultural, and religious practices. At hearing, the Tribes demonstrated the extensive nature of treaty species that live within or rely upon the riparian habitat. The Tribes also demonstrated that, without a healthy and productive riparian habitat, these species have diminished in both quantity and quality. The Tribes also established traditional or historical reliance upon several species of fish, including extirpated anadromous species such as Chinook salmon. Moreover, the Tribes established several of these species are no longer harvestable due to reduced quantities resulting from decreased stream flows.

A healthy and productive habitat is one that will support a viable and self-renewing population of all treaty species to enable the Tribes to exercise their treaty protected rights. As identified previously, Claimants' burden in this matter is to prove, by a preponderance of the evidence, the level of instream flow necessary in a given stream or reach to establish and maintain a healthy and productive habitat for treaty species. As discussed below, I find Claimants have satisfied their burden.

1. Instream flows necessary for physical fish habitat.

Certain treaty species rely on instream flows to provide the physical habitat in which they experience all or part of their life cycle. These include several species of trout and suckers, as well as mussels and crayfish. Historically, this also included at least two varieties of salmon. Anadromous species such as salmon live in saltwater environment but require freshwater streams and rivers for spawning, egg incubation, and juvenile rearing. Prior to construction of dams downstream of the former reservation, anadromous species migrated upstream from the Pacific Ocean into the rivers and streams of the Klamath Basin. Historically, the abundance of salmon in the basin made them a main staple of the Tribes, providing up to one half of tribal members' dietary reserves. Construction of dams below Upper Klamath Lake prevented anadromous species from accessing waters within the former reservation.

Claimants' instream flow claims seek to provide a healthy and productive physical habitat for treaty species currently present, albeit in diminished numbers, within the basin (physical habitat claims) as well as securing rights to water necessary to provide healthy and productive physical habitat for anadromous species once reintroduced to the basin (conditional physical habitat claims). Equally important to fish survival and abundance is the riparian habitat that provides cover and temperature control in the form of overhanging vegetation, protection in the form of woody debris that falls into the stream, and nutrients in the form of insect and plant life that falls into a stream. Without each of these components, fish species cannot exist in a healthy and productive state.

At the hearing, Claimants provided extensive evidence on the level of water necessary, in each claim, to provide a healthy and productive instream habitat. This evidence included extensive data collection, modeling and analysis from highly experienced fish biologists, ecologists, and hydrologic engineers. Claimants provided sufficient evidence to establish the methods and criteria selected were well accepted within the various industries and scientific communities. Claimants correlated the information derived on habitat needs with information on water availability to determine the minimum amount of water necessary to establish and maintain a healthy and productive habitat for species currently present as well as the minimum amount necessary to provide the same habitat for anadromous species currently subject to reintroduction efforts by the Tribes and various other entities. In order to avoid claiming more water than necessary, Claimants capped the physical habitat claims as the lesser of the 50-percent exceedance level or the 1999 amended claim level.

Claimants derived the physical habitat requirements (current and conditional) using accepted methodologies. Primary among these was the IFIM/PHABSIM. This method has been used by fish biologists for several decades to determine instream flow needs. This method is also recognized by OWRD as an acceptable method for determining instream flows. See, OAR 690-028-0027(2). Where data collection for IFIM/PHABSIM was not possible, Claimants utilized the Tennant Method. This is also a well accepted method applied by fish biologist for more than 30 years. In developing the instream flow requirements for target fish species, Claimant considered the needs of those species throughout each lifestage in order to provide a healthy and productive habitat.

The conditional physical habitat claims identify instream flows necessary to provide a healthy and productive habitat for anadromous fish species which are not currently present in the basin. At present, such treaty species are prevented from reaching the basin by multiple dams downstream of Upper Klamath Lake. Nonetheless, the Tribes and other entities are working toward the reintroduction of anadromous species into the basin. If successful, salmon may once again be available for harvest by the Tribes. If unsuccessful, the conditional claims would never go into effect. As such, the conditional physical habitat claims represent water necessary to accomplish one of the primary purposes of the reservation once anadromous species are reintroduced. Undoubtedly, these claims cannot then be denied because anadromous species find their pathways into the basin impeded by dams.

The physical habitat claims and conditional physical habitat claims identified in Attachment A reflect the minimum amount of water necessary to establish and maintain healthy and productive instream habitats within the Upper Klamath Basin.

2. Instream and high flows for riparian plant and animal habitat.

Several plant and animal species thrive within the riparian environments surrounding the streams in this case. Many of treaty species of plants are found nowhere else basin outside the riparian environments. Many of these plants serve as food staples for tribal members. Others have pharmacological or religious uses. Further, many wildlife treaty species hunted by the Tribes rely on the riparian environments for forage, shelter, and reproduction. The Tribes have seen these plant and animal species diminish as riparian areas shrink due to decreased water in the streams.

Claimants' riparian habitat base flow and high flow claims seek to capture the water necessary to establish and maintain healthy and productive riparian habitats for those treaty species dependent upon such environments. The base flow component seeks to maintain the minimum level of streamflow necessary to support the riparian habitat through direct stream contact or contact with the alluvial aquifer. The high flow component applies to certain streams or reaches that meet particular criteria. The high flow claims are designed to preserve natural inundation of the floodplains up to the point where flows reach the 3.4-year cap as well as the point where water recedes from the 3.4-year cap back down to the 1.5-year flood flow that serves as the trigger for the claims. These claims do not claim flows between the base flow and the trigger or encompass flows in excess of the 3.4-year cap.

To develop the riparian habitat claims, Claimants again engaged in extensive study of the basin environments to determine the minimum amount of water necessary to fulfill the purposes of the reservation. To this end, Dr. Chapin performed a detailed study of the basin using cottonwood trees as an indicator species to represent the health of given riparian area. Dr. Chapin selected cottonwood trees because they share many genetic characteristics with willows, a species found throughout the basin's riparian floodplains. Cottonwoods, unlike willows, grow to substantial sizes. This allows for detailed analysis of tree rings present in core samples. Dr. Chapin also determined cottonwoods would provide a conservative estimate of the water needs for the riparian habitat because cottonwood trees are not as sensitive to drought conditions as are willows.

By examining the core samples taken from several test sites within the basin, and correlating this information with historic streamflow data, Dr. Chapin was able to gauge the trees' response to various levels of streamflow. This allowed Claimants to extrapolate data about the health of riparian environments at given levels of streamflow.

Dr. Chapin also examined the extent of riparian areas above the stream. Dr. Chapin concluded that certain stream reaches, specifically those dominated by runoff from precipitation and/or snowmelt and having an identifiable floodplain, required flood flows during the spring months in order to maintain a healthy riparian habitat. Dr. Chapin determined the level of water, outside the banks of the stream, necessary to maintain the riparian plant communities in the

floodplain using industry accepted modeling techniques and hydrologic data provided by Claimants expert hydrologist and OWRD. From this data, Claimants experts were able to calculate how often the necessary level of water was expected to occur. Dr. Chapin and Mr. Ramey then determined a comparable flow for each runoff-dominated stream reach by estimating the 3.4-year peak flow for that reach. I find Claimants have established, by a preponderance of the evidence, that certain base flow and high flow claims are necessary to establish and maintain a healthy and productive habitat. Further, I find Claimants have identified the minimum amount of water necessary, and no more, in the updated claims.

Where a high flow is claimed, the claim period is limited to springtime runoff months of each year. High flow claims for the riparian habitat are triggered by flows sufficient to cause a given stream to exceed its banks and flow onto the floodplain at a specified rate. Claimants established these flows generally have a recurrence interval of 1.5 years. The high flow claims are capped by the 3.4-year peak flow because water level greater than this would provide no added benefit. Finally, the high flow claims are superimposed upon the base flows and do not add to the claimed base flows.

VI. Contestants failed to rebut Claimants' evidence.

Contestants assert Claimants have failed to prove the instream flows claimed are the minimum amount of water necessary to establish a healthy and productive habitat. I disagree. Based on the foregoing discussion, I find each of the claims presented represents the minimum amount of water necessary to fulfill the purposes of the reservation. This is supported by the stark differences present in the updated claims versus the amended claims filed in 1999.

The amended claims filed in 1999 claimed instream flows up to the 20-percent exceedance flow. The effect of this was to prevent diversions, during the claim period, except in years where streamflows were particularly high. Between 1999 and 2009, Claimants continued to collect data and perform analysis aimed at finding the minimum amount of water necessary. Based, in part, on information not available in 1999, Claimants were able to abandon large portions of the amended claims in favor of lower instream flow levels which they determined were sufficient to accomplish the purposes of the reservation. The results were updated physical habitat claims capped by the 50-percent exceedance flow and riparian base flow claims capped by 66-percent of the 50-percent exceedance flow or the 1999 claim level. This translates into significantly lower claim levels as reflected in Attachment A. I find Claimants have demonstrated, by a preponderance of the evidence, the claimed flows represent the minimum amount necessary.

In the alternative, Contestants argue Claimants water rights should be limited based on equitable considerations. This argument is unavailing in light of the well-established body of controlling case law.

Where reserved rights are properly implied, they arise without regard to equities that may favor competing water users. *Coleville Confederated Tribes v. Walton*, 752 F.2d at 405 (1984), citing *Cappaert v. United States*, 426 US 128, at 138 through 139. Accordingly, despite the

urgings of UBC and other Contestants, this tribunal is not free to balance the interests of the Tribes and non-Indian water users in order to effectuate an equitable distribution of water.

Contestants rely on *City of Sherrill v. Oneida Indian*, 544 U.S. 197 (2005) for the proposition that equitable considerations can and should be applied to curtail the rights of federally recognized Indian tribes. Without addressing substance of Contestants legal argument, I find *Sherrill* distinguishable from this case.

Sherrill involved issues surrounding land sold off by the Oneida nation and settled by residents of New York State. Approximately two hundred years later, the Oneida began reacquiring former reservation land through purchases on the open market. The Oneida then sought immunity from property taxes assessed by the City of Sherrill on the reacquired land. The court applied equitable considerations to prevent the Oneida from reviving sovereignty over the lands finding, "[t]he Oneida long ago relinquished governmental reins and cannot regain them through open-market purchases * * *." *Sherrill*, 544 U.S. at 198.

Sherrill involved the tribe's abandonment of control over former reservation land, not treaty rights never abandoned or abolished. In *Sherrill*, the Oneida Indian Nation knowingly relinquished title and control over the subject lands. Two hundred years later, the tribes sought to renew sovereign control over that same land. In this matter, the Klamath Tribes have not, knowingly or otherwise, relinquished the treaty rights they now seek to enforce. The circumstances that permitted the application of equitable principle in *Sherrill* are absent here. Accordingly, I decline the invitation to discard the principles set forth in *Walton* and *Cappaert* identified above.

1. Contestants focus on irrelevant issues (i.e., "causal connection" between ability to exercise treaty rights and flows claimed; requirement that Tribes quantify harvest of treaty resources; etc.)

UBC contends, for the first time in responsive briefs, that Claimants are required to establish a "causal connection" between the Tribes' ability to exercise their treaty rights and the flows necessary to accomplish this purpose. At base, this argument appears to simply reiterate previous arguments in favor of UBC's interpretation the "as currently exercised" and "moderate living" phrases found in the *Adair* cases. UBC's proffered interpretation of the "as currently exercised" has been disposed of by ALJ Russell in the Amended Order. I decline any invitation to revisit that issue here. To the extent UBC's "causal connection" pertains to the quantification of tribal resource use and/or the "moderate living" phrase, those issues have been disposed of in preceding sections of this order.

2. Contestants' insistence on unquantifiable "current flows" and "status quo" is unhelpful and unworkable. (UBC failed to demonstrate a lesser amount than that claimed will fulfill the purpose of the reservation.)

UBC insist that Claimants' goals can be met by maintaining the status quo within the basin. UBC contends current streamflows can and should be maintained by closing the basin to

further appropriations. This proposition fails for several reasons, not the least of which is that maintaining current flows suggests that current appropriators be allows to divert water as they always have. This would defeat the Tribes' "time immemorial" priority date, declared in *Adair I and II,* in favor of junior users.

In addition, Contestants have failed to demonstrate current flows are sufficient to fulfill the purposes of the reservation. Rather, Contestants imply, through such arguments, that the current state of the physical and riparian habitats will support harvestable quantities of treaty species. Accepting Contestants' argument would require the assumption that the current habitat is healthy and productive. A preponderance of the evidence in this matter proves such assumptions cannot be accepted.

Finally, UBC's evidence is simply insufficient to serve as a basis for quantifying the Tribes' water rights. As discussed above, much of UBC's evidence is based on broad generalizations and unsupported "scientific" conclusions. Nothing in UBC's evidence indicates the current flows will allow exercise of the Tribes' treaty rights throughout the former reservation. While UBC claims a lesser amount of water will suffice, they failed to demonstrate, by a preponderance of the evidence, what that amount is. Inexorably, UBC's arguments in this regard are untenable.

3. The Tribes' alleged movement away from reliance on treaty species is irrelevant to the quantification of instream water rights.

Many of UBC's arguments seem to advocate for the abrogation of the Tribes' treaty rights due to a suggested movement away from reliance on treaty resources. Such arguments miss the mark. Only congress can abrogate Indian treaty rights and it has not done so here. The Tribes' reliance upon treaty resources is irrelevant to this quantification proceeding. While it may arguably be relevant to a congressional body in deciding whether to efface certain treaty rights, it is not information that tends to prove or disprove the amount of water necessary to establish and maintain a healthy and productive habitat for treaty species. It follows that Contestants' evidence in support of such arguments, unless also offered for another purpose, is simply irrelevant.

VII. Claims for instream flows in tributaries outside the boundaries of the former reservation.

Claimants filed claims for instream water rights for several streams and reaches that lie either partially or entirely outside the former reservation boundaries. Claims 647 and 652 each encompass small portions of reaches outside the eastern boundary of the former reservation. In addition, the entirety of each reach in Claims 650, 652, 651, and 654 through 657 are situated outside the former reservation. Claimants assert these off-reservation waters are necessary to preservation of several treaty species of fish, including Redband and Bull trout and several species of suckers. In addition, Claimant presented evidence indicating many of these off-reservation waters were historically used by Chinook salmon and, presumably, would be used again once these species are reintroduced into the basin. OWRD and Contestants each contend Claimants are not entitled to claim water rights outside the boundaries of the former reservation.

Claims for off-reservation hunting, fishing, trapping, and gathering rights are very different from off reservation water rights necessary to support the Tribes' on-reservation treaty rights. Here, OWRD and Contestants argue Claimants are not entitled to claim instream water rights outside the boundaries of the former reservation because the 1864 treaty confined the Tribes' rights to hunt fish, trap, and gather to the reservation. The question here is whether the claimed off-reservation flows are necessary to fulfill a primary purpose of the reservation. While I agree Claimants cannot claim hunting, fishing, trapping or gathering rights outside the boundaries of the former reservation, I cannot agree that instream flows claimed outside the reservation are prohibited in this case.

The parties expend considerable effort arguing over the interpretation and applicability of *Kittitas Reclamation Dist. v. Sunnyside Valley Irrigation Dist.*, 763 F2d 1032 (9th Cir. 1985). OWRD and Contestants argue *Kittitas* is inapplicable because the treaty at issue in that case granted the Yakima Nation off-reservation fishing rights. *Id.* at 1033 ("* * *the right of taking fish at all usual and accustomed places[.]"). These arguments, while technically correct, miss the mark. The underlying issue addressed by the district court, and on appeal in *Kittitas*, was whether it could order the water master to maintain flows necessary to protect approximately 60 beds of salmon eggs. The case made no mention of whether the Yakima actually possessed fishing rights in the area below Cle Elum dam where the eggs were located. Instead, the Yakima sought to protect its fishing rights by preserving the salmon eggs. The same may be said of Claimants' off-reservation claims.

One of the primary purposes of the reservation was "to secure to the Tribe a continuation of its traditional hunting and fishing lifestyle." *United States v. Adair*, 723 F.2d 1394 at 1409 (9th Cir. 1984). Claimants seek to preserve instream flows outside the former reservation necessary to provide healthy and productive habitats for treaty species that use the claimed reaches to fulfill important biological needs. Several treaty species migrate through waters on the reservation, and into the off-reservation waters claimed, for spawning and other purposes. Likewise, such species migrate back onto the reservation where they, once again, become subject to the Tribes' treaty rights. Here, like the Yakima in *Kittitas*, the Tribes claim instream flows off reservation to protect spawning and other critical habitat necessary for the exercise of their treaty rights.

For these reasons, I find Claimants are entitled to the claimed flows outside the former reservation identified in Claims 647, 650, 651, 652, and 654 through 657.

VIII. Treaty rights on land no longer owned by the Klamath Tribes.

Next, UBC argues the Tribes no longer possess treaty rights on lands not owned by the Tribes. Again, UBC's argument is unavailing. Contestants seem to continually lose site of the scope of these proceedings. As declared above, the purpose of this adjudication is the quantification of Claimants instream water rights necessary to support healthy and productive instream and riparian habitats within the former reservation. Here, UBC continues to argue in favor of limitations on Claimants' water rights through abrogation, in whole or in part, of the Tribes' treaty rights to hunt, fish, gather, and trap within the boundaries of the former reservation. Such rights were confirmed by the Ninth Circuit well over two decades after

termination of the reservation and the sale of much of the lands therein. (See, *Adair II.*) An analysis of property ownership within the boundaries of the former reservation is unhelpful in these proceedings. Determinations of the extent of the Tribes' treaty rights are beyond the scope of this quantification proceeding and concomitantly exceed the authority of the ALJ.

IX. The Klamath Restoration Act did not limit the restoration of the Tribes' treaty rights.

UBC also contends the Klamath Restoration Act (25 U.S.C. § 566 et. seq.) imposed limitations on the restoration or exercise of the Tribes' treaty right. Specifically, UBC argues the express language of 25 U.S.C. § 566c excludes the Tribes treaty rights from restoration. This argument is unavailing.

25 U.S.C. § 566 restored federal recognition of the Klamath Tribes and provides, in relevant part:

* * * * *

> (b) Restoration of rights and privileges - All rights and privileges of the tribe and the members of the tribe under any Federal treaty, Executive order, agreement, or statute, or any other Federal authority, which may have been diminished or lost under the [termination] Act * * * are restored, and the provisions of such Act, to the extent that they are inconsistent with this subchapter, shall be inapplicable to the tribe and to members of the tribe after August 27, 1986.

25 U.S.C. § 566a provides:

> Nothing in this subchapter shall affect in any manner any hunting, fishing, trapping, gathering, or water right of the tribe and its members.

The restoration act went in to effect seven years after the district courts recognition of the survival of the Tribes' treaty rights and three years after the Ninth Circuit's confirmation of same. Nonetheless, UBC still reads the restoration act as a limitation on the Tribes' treaty rights.

In *Adair I*, the court stated, "[t]reaty hunting and fishing rights for the Tribe, for all its members on the final tribal roll and for their descendants survived the termination of the Reservation." (Internal citations omitted.) 478 F. Supp at 345. This language unequivocally declares the Tribes' treaty rights survived termination. Nothing in the termination act, or the court's opinion cited herein, can be read to indicate Congress intended to abrogate any portion of those rights. A limitation on the Tribes' treaty rights is nothing more than partial abrogation of those rights. In this context, Congress passed the restoration act with a full understanding of the Tribes' treaty rights. Thus, by the plain language of the restoration act, nothing in that act disturbs the treaty rights that survived termination. Accordingly, any argument in favor of partial or complete abrogation of treaty rights based upon the termination or restoration acts must fail.

X. Stipulated agreements in other cases in the Klamath Basin Adjudication do not impact the quantification determination herein.

In the Amended Statement of Contest, UBC contends Claimants must subordinate their claims based upon a stipulation to settle Case 177. Addressing the merits of this argument is not necessary as it does not address the issue of quantification of Claimants instream water rights. The extent to which OWRD may be compelled to enforce any such stipulations is beyond the scope of this adjudication. For that reason, I decline to address UBC's contentions in this order.

ORDER

I propose OWRD issue the following order:

1. The claimed instream flows, reflected in 280-Attachment A, are necessary to establish a healthy and productive habitat to allow the exercise of the Klamath Tribes' hunting, fishing, trapping, and gathering rights guaranteed by the treaty of 1864.

2. Claims 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, and those portions of Claim 612 that pertain to the Sprague River and its tributaries are approved as reflected in 280-Attachment A.

Joe L. Allen, Senior Administrative Law Judge
Office of Administrative Hearings

NOTICE TO THE PARTIES:

If you are not satisfied with this Order you may:

EXCEPTIONS: Parties may file exceptions to this Order with the Adjudicator within 111 days of service of this Order. OAR 137-003-0650.

Exceptions may be made to any proposed finding of fact, conclusion of law, summary of evidence, or recommendations of the Administrative Law Judge. A copy of the exceptions shall also be delivered or mailed to all participants in this contested case.

Exceptions must be in writing and must clearly and concisely identify the portions of this Order excepted to and cite to appropriate portions of the record to which modifications are sought. Parties opposing these exceptions may file written arguments in opposition to the exceptions within 84 days after completion of the 120-day period for exceptions in case 285.

Any exceptions or arguments in opposition must be filed with the Adjudicator at the following address:

Dwight W. French, Adjudicator
Klamath Basin Adjudication
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem OR 97301

CERTIFICATE OF SERVICE

I hereby certify that on **December 1, 2011**, I mailed a true copy of the following: **PROPOSED ORDER**, by depositing the same in the U.S. Post Office, Salem, Oregon 97309, with first class, postage prepaid thereon, and addressed to:

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KBA Case No. 280 Attachment A - Monthly Flow Values

(The table below is taken from pages 42-43 of KBA Case No. 280, Claimant United States Bureau of Indian Affairs' and Claimant Klamath Tribes' Joint Opening Post-Hearing Brief)

Table 1. Monthly Physical Habitat flow values for Sprague River Physical Habitat Claims, KBA Case #280.
All values included in this table are presented in cubic feet per second (cfs). Dr. Reiser Direct Testimony at question 456 and Table X-1.

Claim Type	January	February	March	April	May	June	July	August	September	October	November	December
Claim Reach 641												
Physical Habitat Claim flow value	169	169	169	169	180	180	140	140	140	140	140	169
Conditional Physical Habitat flow value	200	200	169	169	180	180	354	264	290	300	300	200
Claim Reach 642												
Physical Habitat Claim flow value	150	209	209	209	252	200	128	128	128	128	128	150
Conditional Physical Habitat flow value	150	209	209	209	252	200	200	150	150	150	150	150
Claim Reach 643												
Physical Habitat Claim flow value	250	250	250	250	194	194	140	140	140	140	140	250
Conditional Physical Habitat flow value	250	250	250	250	194	194	300	272	294	300	300	250
Claim Reach 644												
Physical Habitat Claim flow value	57	57	57	57	67	67	85	85	85	85	85	57
Conditional Physical Habitat flow value	115	115	57	57	67	67	200	200	172	172	172	115
Claim Reach 645												
Physical Habitat Claim flow value	353	450	450	450	450	450	291	222	241	275	306	337
Conditional Physical Habitat flow value	353	450	450	450	450	450	291	222	241	252	252	337
Claim Reach 646												
Physical Habitat Claim flow value	184	184	184	184	231	231	125	125	125	125	125	184
Conditional Physical Habitat flow value	184	184	184	184	231	231	183	132	147	171	180	184
Claim Reach 647												
Physical Habitat Claim flow value	68	68	68	68	169	169	80	80	80	80	80	68
Conditional Physical Habitat flow value	68	68	68	68	169	169	112	112	101	101	101	68
Claim Reach 648												
Physical Habitat Claim flow value	1.8	3	4.1	8.3	6.4	5.5	3.1	2.7	2.7	2	3	3.2
Claim Reach 649												
Physical Habitat Claim flow value	7	7	11	11	11	11	5	5	4	3	5	7
Conditional Physical Habitat flow value	7	7	11	11	11	11	5	5	4	3	5	7
Claim Reach 650												
Physical Habitat Claim flow value	50	40	40	40	40	50	49	32	33	41	50	50
Conditional Physical Habitat flow value	50	40	40	40	40	50	49	32	33	41	50	50
Claim Reach 651												
Physical Habitat Claim flow value	24	29	29	29	29	24	24	22	22	27	30	24
Conditional Physical Habitat flow value	24	29	29	29	29	33	33	22	22	27	30	24
Claim Reach 652												
Physical Habitat Claim flow value	28	35	35	35	34	27	22	19	20	22	22	23
Conditional Physical Habitat flow value	28	35	35	35	34	27	22	19	20	22	22	23
Claim Reach 653												
Physical Habitat Claim flow value	14	20	21	21	21	14	14	14	14	14	14	14
Conditional Physical Habitat flow value	14	20	21	21	21	19	18	18	18	18	17	14
Claim Reach 654												
Physical Habitat Claim flow value	40	63	66	66	66	44	44	31	33	39	40	40
Conditional Physical Habitat flow value	40	63	66	66	66	44	44	31	33	39	45	40
Claim Reach 655												
Physical Habitat Claim flow value	33	18	18	18	18	33	33	23	23	26	33	33
Conditional Physical Habitat flow value	33	23	18	18	18	50	34	23	23	26	34	33
Claim Reach 656												
Physical Habitat Claim flow value	28	31	31	31	31	28	23	16	16	19	24	24
Conditional Physical Habitat flow value	28	31	31	31	31	40	23	16	16	19	24	24
Claim Reach 657												
Physical Habitat Claim flow value	3	4	5	7.3	7.3	9	6	3	3.6	2	3	3
Riparian Habitat Claim flow value	0	0	11	14	21	14	4.6	2.2	2.4	2.6	3.1	0

(The table below is taken from pages 56-57 of KBA Case No. 280, Claimant United States Bureau of Indian Affairs' and Claimant Klamath Tribes' Joint Opening Post-Hearing Brief and as corrected by Claimant United States Bureau of Indian Affairs' and Claimant Klamath Tribes' Joint Response Brief)

Table 2. Monthly Riparian Habitat flow values for Sprague River Riparian Habitat Claims, KBA Case #280
(all values included in this table are presented in cubic feet per second (cfs))(Dr. Chapin Direct Testimony at question 69 and Tables 2 and 3)

Claim Type	January	February	March	April	May	June	July	August	September	October	November	December
Claim Reach 641												
Riparian Habitat Claim base flow value	0	0	560	851	871	492	234	174	191	231	250	0
Riparian Habitat Claim trigger/cap flow valu	0	0	1480/3230	1480/3230	1480/3230	0	0	0	0	0	0	0
Claim Reach 642												
Riparian Habitat Claim base flow value	0	0	560	851	871	492	234	174	191	231	250	0
Riparian Habitat Claim trigger/cap flow valu	0	0	1470/3220	1470/3220	1470/3220	0	0	0	0	0	0	0
Claim Reach 643												
Riparian Habitat Claim base flow value	0	0	557	838	891	487	227	180	194	225	257	0
Riparian Habitat Claim trigger/cap flow valu	0	0	1460/3000	1460/3000	1460/3000	0	0	0	0	0	0	0
Claim Reach 644												
Riparian Habitat Claim base flow value	0	0	491	752	832	426	195	149	161	185	207	0
Riparian Habitat Claim trigger/cap flow valu	0	0	1370/2980	1370/2980	1370/2980	0	0	0	0	0	0	0
Claim Reach 645												
Riparian Habitat Claim base flow value	0	0	479	726	818	413	192	147	159	182	202	0
Riparian Habitat Claim trigger/cap flow valu	0	0	1370/2800	1370/2800	1370/2800	0	0	0	0	0	0	0
Claim Reach 646												
Riparian Habitat Claim base flow value	0	0	251	381	455	255	121	87	97	113	119	0
Riparian Habitat Claim trigger/cap flow valu	0	0	958/2010	958/2010	958/2010	0	0	0	0	0	0	0
Claim Reach 647												
Riparian Habitat Claim base flow value	0	0	240	366	444	249	118	85	95	110	114	0
Riparian Habitat Claim trigger/cap flow valu	0	0	912/1600	912/1600	912/1600	0	0	0	0	0	0	0
Claim Reach 648												
Riparian Habitat Claim base flow value	0	0	2.7	5.5	6	3.6	2.1	1.7	1.8	1.9	2	0
Riparian Habitat Claim trigger/cap flow valu	0	0	23/31	23/31	23/31	0	0	0	0	0	0	0
Claim Reach 649												
Riparian Habitat Claim flow value	0	0	20	21	22	12	5	5	4	3	5	0
Claim Reach 650												
Riparian Habitat Claim base flow value	0	0	112	178	250	154	83	67	73	79	90	0
Riparian Habitat Claim trigger/cap flow valu	0	0	779/900	779/900	779/900	0	0	0	0	0	0	0
Claim Reach 651												
Riparian Habitat Claim base flow value	0	0	60	111	163	84	37	31	32	36	43	0
Riparian Habitat Claim trigger/cap flow valu	0	0	410/758	410/758	410/758	0	0	0	0	0	0	0
Claim Reach 652												
Riparian Habitat Claim base flow value	0	0	33	38	23	18	14	13	13	14	14	0
Riparian Habitat Claim trigger/cap flow valu	0	0	209/220	209/220	209/220	0	0	0	0	0	0	0
Claim Reach 653												
Riparian Habitat Claim base flow value	0	0	24	28	16	14	13	12	13	14	13	0
Riparian Habitat Claim trigger/cap flow valu	0	0	137/170	137/170	137/170	0	0	0	0	0	0	0
Claim Reach 654												
Riparian Habitat Claim base flow value	0	0	118	178	189	92	34	21	22	26	30	0
Riparian Habitat Claim trigger/cap flow valu	0	0	632/920	632/920	632/920	0	0	0	0	0	0	0
Claim Reach 655												
Conditional Physical Habitat flow value	0	0	56	108	138	60	23	15	17	19	23	0
Riparian Habitat Claim flow value	0	0	399/610	399/610	399/610	0	0	0	0	0	0	0
Claim Reach 656												
Riparian Habitat Claim base flow value	0	0	41	92	114	45	15	10	11	13	16	0
Riparian Habitat Claim trigger/cap flow valu	0	0	309/590	309/590	309/590	0	0	0	0	0	0	0
Claim Reach 657												
Riparian Habitat Claim base flow value	0	0	11	14	21	14	4.6	2.2	2.4	2.6	3.1	0