

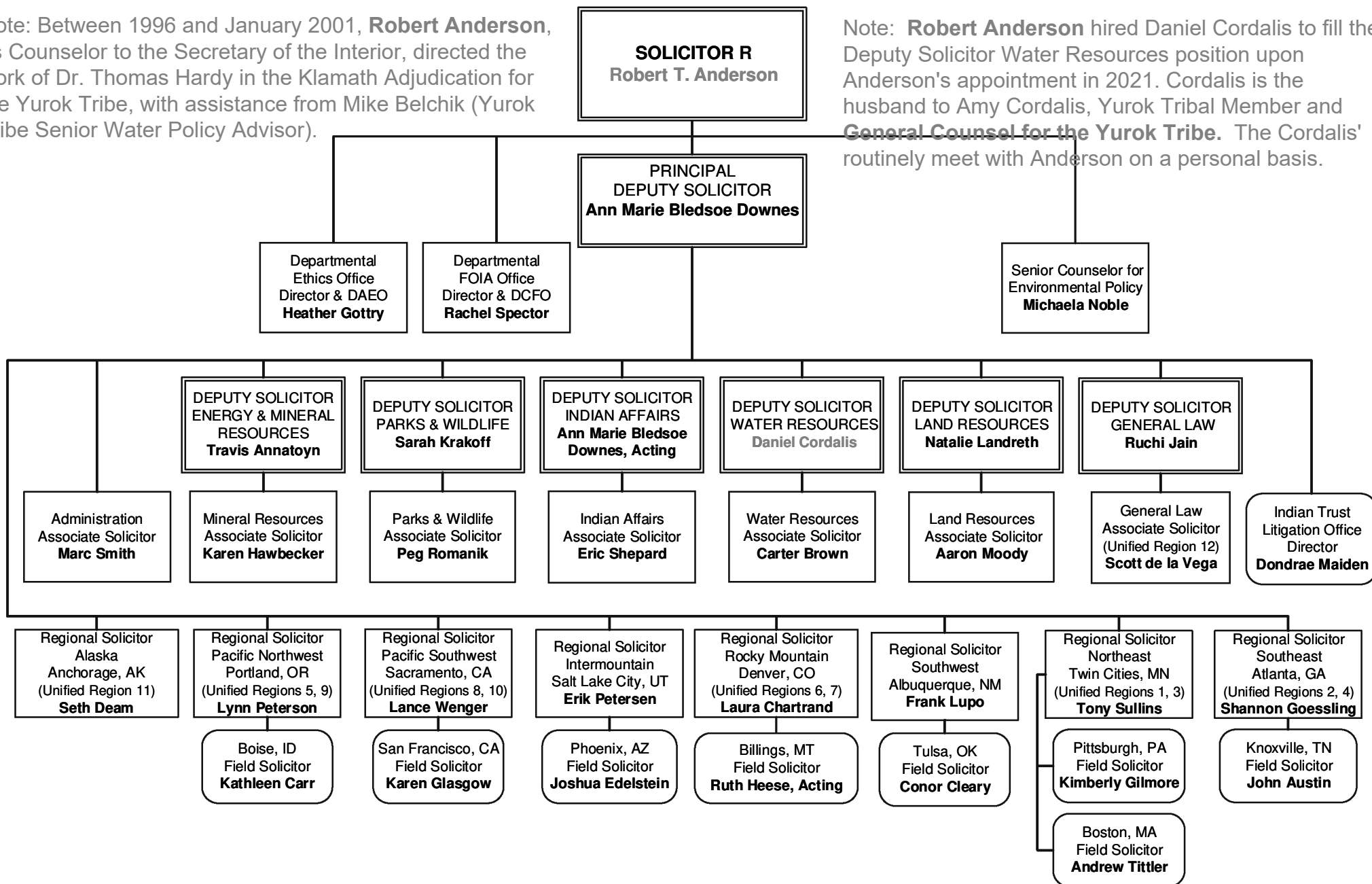
DEPARTMENT OF THE INTERIOR

OFFICE OF THE SOLICITOR

ORGANIZATIONAL CHART

Note: Between 1996 and January 2001, **Robert Anderson**, as Counselor to the Secretary of the Interior, directed the work of Dr. Thomas Hardy in the Klamath Adjudication for the Yurok Tribe, with assistance from Mike Belchik (Yurok Tribe Senior Water Policy Advisor).

Note: **Robert Anderson** hired Daniel Cordalis to fill the Deputy Solicitor Water Resources position upon Anderson's appointment in 2021. Cordalis is the husband to Amy Cordalis, Yurok Tribal Member and **General Counsel for the Yurok Tribe**. The Cordalis' routinely meet with Anderson on a personal basis.



Effective November 8, 2021

Robert T. Anderson

University of Washington School of Law
Seattle, Washington



EXPERIENCE & MAJOR PROFESSIONAL ACTIVITIES

Law Professor, 2001 to Present

Professor of Law, and Director, Native American Law Center, University of Washington School of Law.

Visiting Professor of Law, Spring 2020, University of Colorado School of Law, Boulder, CO.

Harvard Law School, Oneida Nation Visiting Professor of Law, 2009-2021; annual visitor appointment; teaching one term per year.

Courses taught: American Indian Law, Water Law, Natural Resources Law, Property Law, Public Land Law, and Wildlife Law.

Commission on Indian Trust Administration and Reform, 2011 to 2013

Appointed by Secretary of the Interior Ken Salazar to five-member review Commission. Produced final report and recommendations for administrative reform efforts.

President-Elect Obama's Transition Team, September 2008 to January 2009

Co-lead for *Interior Department Agency Review* — (co-lead of team selected to engage in pre-election and post-election analysis of Department of the Interior and to present the new Administration with options regarding all policy and budget matters affecting Interior and its constituents).

Federal Government Service, March 1995 to December 2000

Counselor to the Secretary of the Interior (1997-2000)
Department of the Interior
Washington, D.C. 20240

Associate Solicitor for Indian Affairs (1995-1997)
Department of the Interior
Washington, D.C. 20240

(Both appointments by Secretary of the Interior, Bruce Babbitt)

Native American Rights Fund, August 1983 to March 1995

Senior Staff Attorney
Native American Rights Fund
Boulder, CO and Anchorage, AK
1506 Broadway
Boulder, CO 80302

**Klamath River Basin Fisheries Task Force Technical Work Group
Flow Study Scoping - DRAFT Meeting Notes
Ashland Hills Inn Ashland, Oregon
September 29th - October 1st, 1997**

Meeting convened at 10:20 a.m. on September 29, 1997

Participants:

Mike Belchik, Yurok Fisheries (TWG Chair)

Thomas Payne, Thomas R. Payne Associates (Facilitator)

Larry Dugan, U.S. Bureau of Reclamation

Frank Shrier, Pacificorp

Todd Olson, Pacificorp

Mark Pisano, California Department of Fish and Game

Tom Shaw, U.S. Fish and Wildlife Service

Ross Taylor, Humboldt County

Thom Hardy, Utah State University

Jim Waldvogel, Del Norte County

John Hamilton, U.S. Fish and Wildlife Service, Yreka

Gary De Salvatore, In-River Sport Fishery

Forrest Blake, Hoopa Valley Tribe

James Wroble, Hoopa Valley Tribe

Robert Franklin, Hoopa Valley Tribe

Marcia Armstrong, Siskiyou County

Robert Rohde, Karuk Tribe of California

Ronnie M. Pierce, Karuk Tribe of California

Fran Smith, U.S. Forest Service

Jim Villeponteaux, Salmon River Restoration Council (present 9/29 & 9/30)

Dave Webb, Shasta CRMP (present 9/30)

Don Reck, National Marine Fisheries Service (present 9/30)

Mike Rode, California Department of Fish and Game (present 10/1)

Van Hare, Humboldt State University-TWG Research Assistant

Welcome and Introductions

TWG Chairman, Mike Belchik opened the three day workshop by stating its purpose as 'the creation of a flow study plan to fulfill the Task Force directive'. Belchik placed this effort in context by reiterating the directive from the Task Force as well as the goal of the Klamath River Restoration Act. Belchik pointed out that the TWG has conducted fairly extensive flow study scoping sessions in the past, however entities have gone off on their own direction (funding projects) with the scoping being incomplete. At this time, he explained, the TWG is backing up to complete the scoping of a flow study to focus the direction of its component parts.

Belchik briefly described the proposed structure of the three day workshop and gave some background on the selection of a facilitator. The TWG discussed potential

facilitators at their meeting in Fort Jones, California on September 4, 1997. Thomas Payne was chosen as facilitator for this workshop. Future sessions will be facilitated by Jim Henriksen (USGS). Belchik also explained that Thom Hardy (Utah State University) was present at his request and suggested that the TWG would greatly benefit from both Payne and Hardy's many years of practical experience in IFIM.

Participants briefly introduced themselves - a discussion regarding attendance followed:

Franklin: (to Hardy) what organization do you represent in your capacity at this workshop?

Hardy: I am attending at Mike Belchik's request to provide technical input as an IFIM specialist. My time is being paid for by the U.S. Department of Justice, but that I am 'leaving that hat at the door'. I am an IFIM practitioner from Utah State University.

Franklin: Who isn't here? It is very important that we have full involvement from the TWG.

Belchik: Klamath county and NMFS are missing (though Don Reck was present for NMFS on 9/30). All TWG members were encouraged to attend. I think that a lack of funds to pay consultant fees is probably the main problem.

Hamilton: Klamath County was sent a certified letter regarding this meeting. This problem was brought up at the April 23rd-24th, 1997 Task Force Meeting and at that time Nat Bingham pointed out that if they (Klamath County) didn't have a TWG representative at such meetings the process was still going to move forward.

Hardy: Is the intent of the end of this process a written study scope?

Belchik: Yes

Hardy: Then all that can be done is to send out a draft of that study scope and allow for their input at that time.

Payne: Is it advisable to move forward to the county's process and stress the importance of their involvement to the County Board of Directors?

Franklin: It is of obvious benefit to have Klamath County represented, we should look into what ever it takes to get them to the table.

The group expressed their gratitude to John Hamilton's office for their excellent work in preparing and sending out the background materials packet that participants received in the mail. Thanks was also sent to Kelly Neumeier who is ending her year of service as the TWG Research Assistant at Humboldt State University. Though she was not present, Kelly was awarded a plaque by John Hamilton from the U.S. Fish and Wildlife Service - Yreka Office.

Discussion regarding the agenda:

Belchik: are there any additions to the agenda?

Hardy: I would like to see the agenda reflect a plan to set another meeting date as well as a date for completion of the draft study scope plan. (Belchik agreed).

Bits: I have a letter to pass out (Handout G). [Reads letter] This is from Jimmy Smith one of the prime movers on restoration in Humboldt County, if not the north coast. If I could add a comment on the status of the fishery, whenever the projected population of Klamath chinook is enough to get us off the floor (where we are not managing for the 35k escapement as the objective for that year), the ocean share is about a 20 percent harvest of the age four Klamath Fish. More years than not we get to manage for about 9%, meaning we are about half way. Despite the best efforts of this program and others there are not many Klamath Fish making it to the ocean. The situation is not improving.

Fletcher: It is important to look back to the intent of the Act. Not only are fall chinook populations low, but coho, steelhead, spring chinook, sturgeon populations are also low. They may go extinct but not due to sport, tribal, or commercial harvest. It is important that we look at habitat issues hard.

Wilkinson: Oregon put a supplementation proposal on the table in terms of fall chinook harvest several years ago; that proposal has never even been responded to. It is interesting to me to see the letters from the Klamath Guides association and Jimmy Smith's letter suggesting some specific steps that might be taken. We really have not followed up on the intent of the Act. I can't help but wonder had we embarked on any of these efforts offered then, where would we be now? Hopefully no worse.

Barry: What action you want to entertain or is it mostly for information?

Bits: It is mostly for information. There are some specific suggestions in the last part of the letter that could in the short term increase populations of fish for harvest. I would also direct your attention to the language about lethal water conditions becoming a recurrent problem. Dissolved oxygen in the summer at night is a serious problem. If the Klamath River is killing its children, then whatever else is being done won't matter; we won't get results.

Smith: There has been exponential growth in the number of marine mammals at the mouth of the river; that's an issue that we have not addressed.

Orcutt: There has been discussion on having a joint KC/TF meeting. On agenda should be the question of ~~What~~ What are the management objectives for fall chinook in the Klamath? ~~@~~ There are a lot of misconceptions. The fish managers and habitat people each have their own perceptions. It would be good to air this question; it would speak to some issues including supplementation. Klamath stocks are managed for the wild fish component. They are managed for some harvest rate to see what the productivity is. There are overlaps between the KC and TF missions.

Bulfinch: California Department of Fish and Game (CDFG) is forbidden to run a supplementation hatchery and Pacific Power will only pay for mitigation for the loss of habitat due to the dam under the Federal Energy Regulatory Commission (FERC) license. Supplementation needs to be done which is closer to the ocean so that wildstocks are not impacted by straying. We might need to give thought to two separate objectives: sustainability of present fisheries and restoration in the future.

Barry: How is this addressed in LRP?

Bulfinch: Very vaguely.

14. Status of DOI's flow study report and recommendations (Robert Anderson, Counselor to Secretary, DOI and Dr. Thom Hardy, Utah State University)

Barry: I would like to introduce Counsel to the Secretary of the DOI, Bob Anderson, and we will hear from Dr. Thom Hardy.

Bob Anderson: Thanks Cindy and TF members. I want to put into perspective what I am doing on the Klamath Adjudication and the associated alternative dispute resolution (ADR). It's a project that is very important to the Secretary's Office and to the DOI as a whole. Generally when we are involved in state water adjudications, like the Oregon case, we have a policy (that Secretary Babbitt has carried forward from Secretary Lujan in the Bush Administration) to try to settle these disputes rather than litigating them. We have about 19 of these cases going on throughout the west and there is a procedure in setting up Federal negotiating teams to try and facilitate settlements rather than litigating the issues. Typically, what comes out of these settlements is a definition of relative water rights of the parties that are involved: Indian Tribes, non-Indian irrigation districts, private water users that are not associated with irrigation districts, and any other water right claimants involved in the

adjudication which by law has to have every affected user included in these adjudications. That's what we are facing up in Oregon. The case has been in litigation for about 15 or 16 years. Now we are finally down to the point where claims have been filed by the United States and by all the private interests involved in the case. There are several types of claims. Claims that the United States has are made on behalf of Tribes are two different types: one, instream flow claims that are largely above Upper Klamath Lake (UKL) to maintain fisheries habitat in Sprague, Williamson and other rivers.

Secondly, claims have been made to waters and certain lake levels in UKL in order to preserve habitat for the fish that are also listed under the Endangered Species Act. There is also a biological opinion by the FWS that addresses the minimum lake level for Klamath lake.

Thirdly, the United States filed claims on behalf of the Klamath Project the irrigation district claiming water for irrigation purposes. There are other claimants that are not associated with the irrigation district. They are also before the court and they are also part of this alternative dispute resolution process that Martha Pagel and the State of Oregon are spearheading. That process is set up by the State and has a three year time frame. They are very firm in terms of adhering to this three year time frame. Its parallel to the actual litigation and adjudication time frame that's being conducted before the Oregon Department of Water Resources. The litigation is ongoing, but most of the energy is being devoted to the actual negotiation in an attempt to resolve the issue by consensus. The problem we face is that one year from now the State of Oregon is obligated to report to an administrative judge here as to what its views are with respect to water rights claimed by the United States, the Tribes, and every other claimant involved in the adjudication. As part of the process, we are hopeful we'll have a settlement proposal to offer to the administrative law judge, in lieu of litigating the claims. Such a proposal would lay out first what the stream flows are that can be agreed on in the rivers above UKL. Then secondly, on the lake level and how the irrigation district would be dealt with as well as the other water users. In order to do that, we are going to need to study and obtain funding for water supply augmentation projects. There is a study group considering those alternatives. We have picked seven to eight of those out of that process and are trying to move those along on an accelerated basis.

There is a pretty good consensus between the irrigators and the Tribes of the United States and other affected users in the State of Oregon that certain projects such as raising UKL merit a hard look sooner rather than later. We are trying to get the BOR to study those projects. The problem is that the State of Oregon and the water users want to know that if we reach a settlement on the Oregon side of the border there are assurances that someone is not going to come back in six months, in a year, or in five years and say that more water is needed for tribal claims or require more water under the Endangered Species Act (ESA) for species proposed for listing. That is a reasonable question raised by the Oregon side. My response is to talk with folks within the DOI and get Thom Hardy on board to look at ideas that are already circulating as a result of your work and as a result of work done by the Tribes to provide an initial estimate of what Oregon's contribution to the mainstem should be. I would like to be in a position in about a year to propose a figure that could provide some level of certainty. We are not going to be able to write that in stone in one year, but I would like to be able to move a settlement forward on the Oregon side in two years and say what we expect your contribution to be and have a number based on Thom's work with you.

The Tribes have ideas about habitat improvement along the Sprague and Williamson rivers that will improve water quality flowing into Klamath Lake which will reduce the need to have a higher lake level. The FWS is interested in filling out the boundaries of the wildlife refuges particularly upstream of Klamath Lake. If we can acquire those properties, as anticipated, that will have a beneficial effect on water quality flowing into Klamath Lake as well. With all these water rights settlements that have gone before (there has been about 12 or 13 of them since the early 80's involving Indian water rights, BOR projects, and other interests) there is always an off-ramp. If we get to a point where some unforeseen circumstances arise and we need more water from Oregon, we are going to have to build in a mechanism that all bets are off and go back to court to adjudicate. In order to compensate for the lack of absolute certainty, we are going to have to build some flexibility into the number and the assurances so that Thom can get us a figure in two years, then as the work is going on, we can refine and make adjustments. If the State of Oregon comes back, or the private water users, or the Tribes say that is not enough and they want absolute certainty, then it will have to be resolved through litigation. In contrast to litigation, settlement possibilities will move along water augmentation and this would result in money to accomplish the projects.

Dr. Thomas Hardy (Utah State University): There is some confusion why the Department of Justice (DOJ) is involved. I was already under contract with DOJ, they used an existing contract. But I work for Mr. Anderson and the Bureau of Indian Affairs (BIA). The work needs to occur in two phases. Phase I is in the next few months. We are going to look at the historical context of flow in the basin. We can then make some flow recommendations that can be used within this year for water planning and give it to Mr. Anderson. First, we need to do a study to meet Mr. Anderson's needs under Oregon Alternative Dispute

Resolution (ADR) process. Secondly, we need to meet the ongoing annual needs relative to KPOP. Third, we need to be compatible with the efforts of the TF, U.S. Geological Survey (USGS), and Tribal programs. There is no secret conspiracy.

In Phase II, we need to get in the mainstem, the Scott, and Shasta Rivers to know what flows out of Oregon need to be to ensure runs. I cannot do it without the information on the tributaries. We'll begin with the federal family, BOR and TWG to find out how we can do it in two years and also meet the strategic objective of the TF. The data collection would meet the needs of BOR, KPOP, Tribal programs, and USGS in light of what they have brought to the TF regarding salmon and IFIM. I have talked on the phone with CDFG and Gary Smith on the Habitat Suitability Curves (HSC).

Smith: I have the minutes from the TF meeting in June 97 where the TF approved the \$50,000 for the mainstem. At that time, there was no knowledge of another study. I understand it now to include Shasta and Scott. When did the TF get piggy backed into working in the Tributaries? Where do the other funds come from? Have you expanded the study? Who owns the data?

Hardy: A little foundation on this. Over one year ago at a TWG meeting, we were asked to give technical opinions. This was the first time we discussed airborne remote sensing. Those discussions went before the TF. Some time later the study expanded and the National Marine Fisheries Service (NMFS) and BIA felt that would be an opportunity to do more. They both provided pots of money to be used to fund the Tributary work.

Smith: The first time I met you was in Eureka. We discussed a flow study in the Klamath. Part of the problem is that we only agreed to Iron Gate Dam (IGD) to the mouth. The people of Siskiyou County thought the study was from the IGD to the mouth. It has gotten away from this. You know how critical this is. These are critical issues to me. I have worked hard and long to develop trust with landowners. How can I trust what you are saying now? I want to know if this is part of a lawsuit on behalf of the Tribes.

Anderson: There is no reason why this information is not made available to everyone in this room. This data was to be use to facilitate a settlement; we will make it available to you and vice versa. We are not contemplating a lawsuit again anyone in California. The data are for the ADR. If they can be used to accomplish longer term goals, that will be another effort.

Barry: Is the issue that the \$50,000 was used in way TF did not intend?

Smith: I want it in writing that what we decided here will not come back to bite us. I do not want to hurt people that I represent. You make me real nervous.

Anderson: Oregon started a lawsuit and dragged us in. As far as I am concerned the information should be available to TF, citizens, you, the constituents, and irrigation districts. However, if someone takes the information and uses it for lawsuit, I cannot control that. I represent the DOI. I am here for two more years. We have support from the Tribes and Kitzhaber.

Smith: What does that have to do with tributaries in the Scott and Shasta?

(Anderson to Hardy). Hardy: FWS says that we need that information. Folks in Oregon say we should not be taking the hit for all of California ourselves.

Smith: There is one more issue. At the ground truthing workshop where CRMPs were called in, they were led to believe that this is a TF project. This has been misrepresented to local volunteer groups.

Hardy: I will take responsibility for any misrepresentation. The only part of digital imagery being paid for by the TF is the mainstem. Decisions on spending TF money elsewhere will come back to the TF. But we also have an opportunity on the tributaries. We are not trying to do anything to destroy trust. My understanding is that the TF approved USGS plan. I have been trying to get the information that achieves the strategic plan of USGS.

Fletcher: We never decided to limit the study to the mainstem. This body has known that and will address issues related to fish basin wide. Our position is that we are charged with restoration of anadromous fish.

Russell: For Hardy, you mentioned that you would review data on historic flows, how far back and on what tributaries?



United States Department of the Interior

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Washington, D.C. 20240

Phone 202 208-6967
Fax 202 208-3490
Inter-net Scott_Bergstrom@ios.doi.gov

February 3, 2000

NOTE

To: Jim Clear, DOJ Indian Resources
Bob Bruffy (or DOJ Executive Officer)

From: Scott Bergstrom, DOI Solicitor's Office

Re: Klamath Interagency Agreement Modification

Please find enclosed five (5) original modifications to the existing Interagency Agreement between the Bureau of Indian Affairs and DOJ for Klamath River instream flow work. The modification adds funding to the existing Agreement. Jim - I understand from David Harder that you should have his okay via fax this morning (if not already).

Please expedite - the contractor has stopped work vitally needed to address scientific issues in the coming months pending completion of this Agreement, and David and I have Bob Anderson and other DOI types hounding us to get this through asap. If at all possible, please call myself or our secretaries for pick-up, today hopefully, after signing all five originals. Once the BIA contracting officer signs (which he insists must be after DOI "accepts" the IA), I'll return an original to each of you (or, Jim, to David Harder). Please call my direct line - 208 5928 - if any questions. Thank you!

INTER-AGENCY AGREEMENT**BETWEEN****SPECIAL LITIGATION COUNSEL****UNITED STATES DEPARTMENT OF JUSTICE****AND****BUREAU OF INDIAN AFFAIRS****UNITED STATES DEPARTMENT OF THE INTERIOR****PARTIES:**

United States Department of Justice, Special Litigation Counsel (Justice Department), 601 Pennsylvania Avenue N.W., Washington, D.C. 20004 and United States Department of the Interior, Bureau of Indian Affairs (BIA), Director, Trust Responsibilities, 1849 C Street, MS-4559-MIB, Washington, D.C. 20240

PURPOSE

The material and testimony developed under this Inter-Agency Agreement (Agreement) will be used to support United States claims for water on behalf of the Hoopa Valley, Klamath and Yurok Tribes (Tribes) in administrative and potential legal proceedings which affect their fishery and associated water rights in the Klamath Basin, California and/or Oregon with regard to the development and implementation of the Klamath Project Operations Plan (KPOP). In order to assure that future use and development of tribal fishery and associated water rights are possible, non-Indian irrigation practices, as well as other water uses in the Klamath Basin, must be examined.

RECITALS

This Agreement is being entered into under the authority of 31 USC Section 1535 to inventory and evaluate previously conducted technical studies and to recommend additional studies to support water rights claims for the above referenced Tribes. The Justice Department will select a contractor or contractors who will provide the services described in the Scope of Work.

The Justice Department, the Department of the Interior Solicitor's Office (Solicitor's Office) and the BIA Central Office will monitor the work of the contractor or contractors to assure that all material and work is technically and legally acceptable.

**BIA INTERAGENCY AGREEMENT
NO: AG6K000029 MOD #1**

Part 1 Request

1. Title of Recommending Official James Clear		1a. Signature Electronically signed by Beverly Schutte for James Clear		2. Date 02/18/2000	
3. Person to be contacted a. Name : David Harder b. Telephone : (303) 312-7328		4. Case Name : Klamath River Basin Adjudication 5. DJ File Number : 90-6-2-70 6. District : Oregon 7. Docket Number :			
8. Section IRS	9. Attorney Location Denver, CO	10. Contract Type Original			
11. Reason for Request Expert Testimony required on behalf of U.S.		12. Funding Source Reimbursable Debtor Code : 0028 Client Agency : DOI BIA City : Washington, DC			
13. Expert Name Thomas B. Hardy	14. Expertise Hydrology Engineer	15. Rates Per Hour	16a. Preparation \$60.00	16b. Testimony	
17. Mailing Address Dr. Thomas B. Hardy Utah State University Contracts and Grants 2400 Old Main Hall Logan, UT 84322-2400		18. Tax Information Tax Identification Number : 87-6000528 19. Phone : (435) 797-3127 20. Fax : 1-435-797-3102			
21. Anticipated Trial Date		22. Total Estimated S.O.W. Cost : \$550,086.00 Full Funding Reminder : Expert Witnesses are not entitled to advance payments			

23. Additional Information / Comments (Statement of Work attached, includes expense detail)

The discontinued form OBD-47 with original attorney and recommending official authorizing signatures is maintained in the DOJ official contract file.
Agreement No. AG6K0000029; Modification No. 6

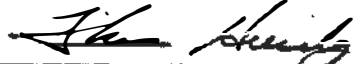
X-Ref FY99-19065

ORIGINAL

Part II - Witness Authorization

1. Date : 02/18/2000	6. OBL Month : 0002
2. Authorized Amount : \$ 550,086.00	7. SOC : 2599
3. YREGDOC : 2000 - 01 - 30018	8. Approved by : Electronically signed by Frits Geurtsen
4. Cost Center : OB1595 5. FY : 2000	9. Approved on: 02/18/2000

Part III - Witness Agreement

1. Witness Submit invoice to : USDOJ/ENRD Expert Witness Unit P.O. Box 685, Ben Franklin Station Washington, DC 20044		2. Auditors : (to be completed by Expert) a) None : b) Govt : c) Other (Name, City, State) :	
3. Signature (Government Attorney) Electronically signed by Beverly Schutte for David Harder	4. Name/Title of Government Attorney David Harder, Field Office Attorney	Date 02/18/2000	
5. Signature (Expert Witness) 	6. Name/Title of Expert Witness Thomas B. Hardy	Date MARCH 7, 2000	

The Expert Witness(es) agree(s) to perform the described services and appear as a witness/witnesses on behalf of the Government

All payments relating to this agreement shall be in accordance with the Prompt Payment Act.

ATTORNEY
WORKSPACE

Watershed Systems Group, Inc.

1656 University Drive
Logan UT 84341
Telephone: 435-797-2824 (voice)
FAX: 435-797-1185

Principals
Craig Addley
Thomas Hardy

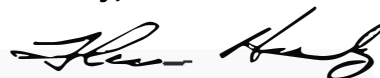
September 7, 2000

Dear Mr. Harder and Mr. MacFarlane:

You have asked me to provide you with a declaration in connection with litigation stemming from the Bureau of Reclamation's actions to ensure that the Klamath Irrigation Project in Oregon is operated in compliance with the Endangered Species Act and Reclamation's responsibilities to protect tribal trust resources. This litigation is directly related to the United States' reserved water rights claims in the Klamath Basin General Stream Adjudication before the Oregon Water Resources Department as well as the United States' ongoing efforts to quantify instream flow requirements for tribal trust resources below Iron Gate Dam. The declaration will be considered by the court to be my testimony.

It will take me 20 hours at a rate of \$130 per hour to complete the declaration. In addition, you will likely require 20 hours of my time for additional expert review and testimony. Thus, \$5,200 will cover my work to assist with this litigation.

Sincerely,



Dr. Thomas B. Hardy, Ph.D.

NOTE: Dr. Hardy at no time expressed his work would be to identify the critical habitat needs or biological needs for the coho salmon. His bias is clear in this statement to David Harder, Field Office Attorney.

Part 1 Request

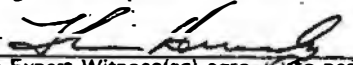
1. Name/Title of Recommending Official James Clear		1a. Signature Electronically signed by Kevin Kidwell for James Clear		2. Date 10/29/2000	
3. Person to be contacted a. Name : Judith Rabinowitz b. Telephone : (415) 744-6486		4. Case Name : Matter -- Yurok Water Rights Adjudication System 5. DJ File Number : 90-6-2-00815 6. District : Oregon 7. Docket Number :			
8. Section IRS	9. Attorney Location San Francisco, CA	10. Contract Type Original			
11. Reason for Request Expert Testimony required on behalf of U.S.		12. Funding Source Reimbursable Client Agency : DOI BIA		Debtor Code : 0028 City : Washington, DC	
13. Expert Name Thomas B. Hardy	14. Expertise Hydrology Engineer	15. Rates Per Hour	16a. Preparation \$44.79	16b. Testimony	
17. Mailing Address Dr. Thomas B. Hardy Utah State University 4110 Old Main Hill Logan, UT 84322-4110		18. Tax Information Tax Identification Number : 87-6000528 19. Phone : (435) 797-3127 20. Fax : 8-435-797-3102			
21. Anticipated Trial Date		22. Total Estimated S.O.W. Cost : \$286,694.37 Full Funding Reminder : Expert Witnesses are not entitled to advance payments			
23. Additional Information / Comments (Statement of Work attached, includes expense detail) The authorized funded amount shown in Part II, Item 2, shall NOT be exceeded without authorization and written modification of the Contract by the Government. Per attorney DJ# changed from 90-6-2-70 to 90-6-2-00815. Funds moved from FY00-30018. IAG #AG6K000029, Mod.06 Contract contact: Utah State--Doug Ringle, (435)797-1065 Dr.Hardy's office--Tammy Peterson					

ORIGINAL

Part II - Witness Authorization

1. Date : 09/29/2000		6. OBL Month : 0009	
2. Authorized Amount : \$ 286,694.37		7. SOC : 2599	
3. YREGDOC : 2000 - 01 - 30132		8. Approved by : Electronically signed by Debra Richardson	
4. Cost Center : 0B1595 5. FY : 2000		9. Approved on: 09/29/2000	

Part III - Witness Agreement

1. Witness Submit invoice to : USDOJ/ENRD Expert Witness Unit P.O. Box 685, Ben Franklin Station Washington, DC 20044		2. Auditors : (to be completed by Expert) a) None : b) Govt : c) Other (Name, City, State) :	
3. Signature (Government Attorney) Electronically signed by Kevin Kidwell for Judith Rabinowitz		4. Name/Title of Government Attorney Judith Rabinowitz, Attorney Date 10/29/2000	
5. Signature (Expert Witness) 		6. Name/Title of Expert Witness Thomas B. Hardy Date	
The Expert Witness(es) agree(s) to perform the described services and appear as a witness/witnesses on behalf of the Government		All payments relating to this agreement shall be in accordance with the Prompt Payment Act.	

March 1998 Form ENRD-236

Part 1 Request

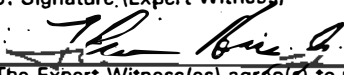
1. Name/Title of Recommending Official James Clear		1a. Signature Electronically signed by Kevin Kidwell for James Clear		2. Date 10/29/2000	
3. Person to be contacted a. Name : Judith Rabinowitz b. Telephone : (415) 744-6486		4. Case Name : Matter -- Klamath Project Curtailment of Water 5. DJ File Number : 90-1-2-10086/1 6. District : Oregon 7. Docket Number :			
8. Section IRS	9. Attorney Location San Francisco, CA	10. Contract Type Original			
11. Reason for Request Expert Testimony required on behalf of U.S.		12. Funding Source FEW			
13. Expert Name Thomas Hardy	14. Expertise Hydrology	15. Rates Per Hour	16a. Preparation \$130.00	16b. Testimony	
17. Mailing Address Dr. Thomas Hardy Watershed Systems Group, Inc. 1656 University Drive Logan, UT 84341		18. Tax Information Tax Identification Number : 87-0560247 19. Phone : (435) 797-3127 20. Fax : 8-435-797-1185			
21. Anticipated Trial Date		22. Total Estimated S.O.W. Cost : \$5,200.00 Full Funding Reminder : Expert Witnesses are not entitled to advance payments			
23. Additional Information / Comments (Statement of Work attached, includes expense detail) The discontinued form OBD-47 with original attorney and recommending official authorizing signatures is maintained in the DOJ official contract file. The authorized funded amount shown in Part II, Item 2, shall NOT be exceeded without authorization and written modification of the Contract by the Government.					

ORIGINAL

Part II - Witness Authorization

1. Date : 09/29/2000		6. OBL Month : 0009	
2. Authorized Amount : \$ 5,200.00		7. SOC : 1157	
3. YREGDOC : 2000 - 01 - 40218		8. Approved by : Electronically signed by Terri Cahill	
4. Cost Center : 0361960413	5. FY : 2000	9. Approved on: 09/29/2000	

Part III - Witness Agreement

1. Witness Submit invoice to : USDOJ/ENRD Expert Witness Unit P.O. Box 685, Ben Franklin Station Washington, DC 20044		2. Auditors : (to be completed by Expert) a) None : b) Govt : c) Other (Name, City, State) :	
3. Signature (Government Attorney) Electronically signed by Kevin Kidwell for Judith Rabinowitz		4. Name/Title of Government Attorney Judith Rabinowitz, Attorney	Date 10/29/2000
5. Signature (Expert Witness) 		6. Name/Title of Expert Witness Thomas Hardy	Date 10/4/2000
The Expert Witness(es) agree(s) to perform the described services and appear as a witness/witnesses on behalf of the Government		All payments relating to this agreement shall be in accordance with the Prompt Payment Act.	

March 1998 Form ENRD-236

RECEIVED

JUN 18 2001

Klamath Irrigation District

FILE

CONTRACT/GRANT OFFICE
1415 Old Main Hill
Old Main Room 64
Logan, UT 84322-1415

December 15, 2000

Kevin Kidwell
DOJ/ENRD Expert Witness Unit
PO Box 685, Ben Franklin Station
Washington, DC 20044

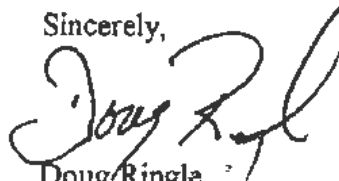
Dear Mr. Kidwell:

SUBJECT: Contract for Matter – Yurok Water Rights Adjudication System, DJ #90-6-2-00815 between the Department of Justice and Utah State University

Enclosed is a copy of the above referenced modification that has been reviewed, approved, and signed by the University. The terms and conditions contained within the modification are acceptable to the University. If you have questions, please contact me at (435)797-3799.

We will proceed as outlined in the contract.

Sincerely,


Doug Ringle
Contract Administrator

aa

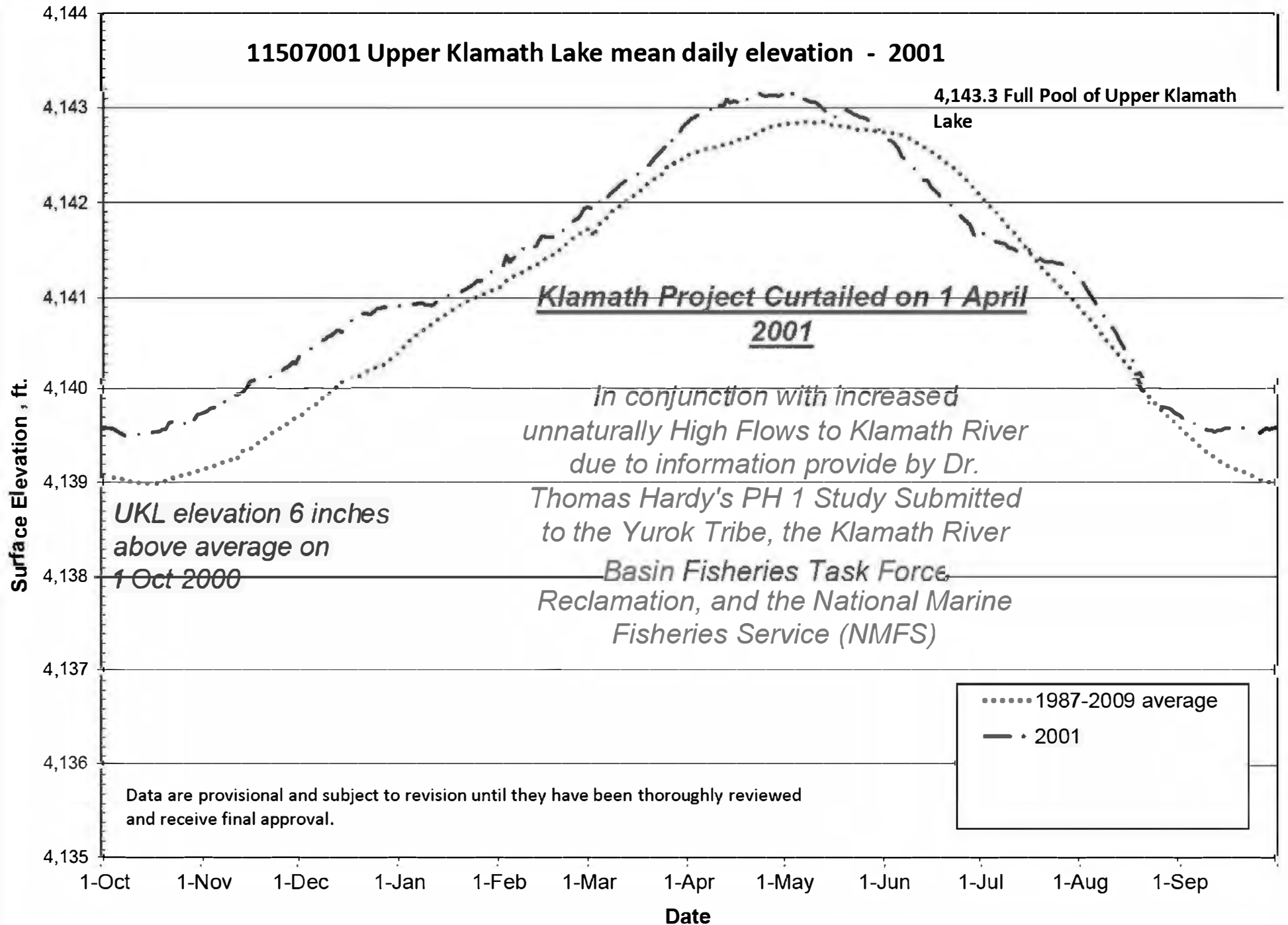
Enclosure

c: Thomas Hardy

Exhibit 9, Page 14 of 52



11507001 Upper Klamath Lake mean daily elevation - 2001



Water Year	Hardy et al (2006) Estimated Annual Flow Changes to the Klamath River due to Klamath Irrigation Project operations predicted by KPOPSIM (Table 3) in 1,000/af ¹	Actual Historical Klamath Irrigation Project Diversion ² (Includes Lost River diversions which are not natural to the Klamath River) in 1,000/af	Lost River Diversion Channel Additions to Klamath River and Klamath Irrigation Project ³ in 1,000/af	Estimated Annual Klamath Irrigation Project Returns to Klamath River from Klamath Straights Drain ⁴ in 1,000/af	Estimated Annual Evaporation from Lower Klamath Lake Historically Lost to Klamath River below Keno and added to Klamath River Availability ⁵ in 1,000/af	Hardy Model Over Estimation Error in 1,000/af
1981	-323.2	-392	+38	+79	+100	72
1982	-555.5	-343	+127	+149	+79	313
1983	-399.2	-346	+143	+138	+82	130
1984	-363.5	-373	+142	+151	+99	98
1985	-344.4	-408	+84	+110	+98	60
1986	-430.7	-405	+89	+125	+97	158
1987	-395.5	-424	+46	+100	+99	124
1988	-426.2	-429	+42	+100	+99	154
1989	-504.1	-385	+67	+110	+97	259
1990	-380.5	-422	+46	+100	+96	108
1991	-450.9	-422	+22	+79	+97	182
1992	-417.1	-380	+11	+2	+96	124
1993	-533.4	-350	+56	+83	+95	305
1994	-311.2	-419	+19	+49	+100	22
1995	-534.3	-354	+66	+75	+100	289
1996	-393.3	-395	+107	+127	+95	113
1997	-522.6	-417	+91	+100	+99	213
Average	-398.3	-392	+70	+99	+96	130

The Hardy models overestimate the changes to the Klamath River by 130,000 acre-feet per year on average.

¹ Hardy, Thomas B, R. Craig Addley, and Ekaterina Saraeva. 31 July 2006. Evaluation of Instream Flow Needs in the Lower Klamath River. Phase II. Final Report. Prepared for the U.S. Department of the Interior. P. 32

² KBPM Simulation Viewer 071421 provided by MBK Engineering.

³ Data extracted from <https://www.usbr.gov/pn-bin/daily.pl?station=lrd&format=html&year=1980&month=10&day=1&year=1997&month=9&day=30&pcode=qd&pcode=qj>

⁴ Davids Engineering Inc. October 1998. Klamath Project Historical Water Use Analysis. Briefing Chart #27. Klamath County, Oregon and Siskiyou County, California.

⁵ Davids Engineering Inc. October 1998. Klamath Project Historical Water Use Analysis. Briefing Chart #33. Klamath County, Oregon and Siskiyou County, California.

Analysis of Dr. Thomas Hardy Flow Studies PH 1 and PH 2 being utilized as the "best available science" for flows in the Klamath River to protect the threatened Southern Oregon Northern California Coast coho salmon.

Timeline (1 of 2)

1992 Drought Conditions in Upper Basin not seen since the 1930s

1994 March - William Trush with Institute for River Ecosystems, Fisheries Department, Humboldt State University publishes a paper focusing on the geomorphic perspective to anadromous fish restoration in the Klamath Basin. Received by the Yurok Tribe on 1 January 1995.

- 5 Principles (don't establish minimum flow requirements - use natural conditions)

1994 Drought Conditions in Upper Basin similar to the 1930s

1994 August - Donald Anglin publishes USFWS / BIA "Lower Klamath River Instream Flow Study" under interagency agreement AG1J5200003 at the behest of Yurok Tribe.

- Numerous shortfalls in data. No known relationship between flows and fish habitat issues

1994 Fall - Vogel Environmental Report

- Critical of flow demands by Yurok

1995 January - "Tribes are mad" - hand written note on Klamath River Flow Study Scoping Meeting

1995/1996 - DoJ establishes interagency agreement with BIA AG6K000029 to support claims for Yurok "potential legal proceedings which affect their fishery and associated water rights...with regard to the development and implementation of the Klamath Project Operations Plan...to assure that future use and development of tribal fishery."

1996, November 29 - Scott Bergstrom (Attorney for Division of Indian Affairs) provides a statement of work to Dr. Hardy's Watershed Systems Group, Inc to :investigate, evaluate, and analyze [tribal] fishery needs. The investigation of the water supply is necessary for the purpose of determining the source, quantity, and variability of the water resource on the Indian Trust land related to the Klamath Project Operations Plan."

Exhibit 9, Page 17 of 52

1996, December 31st - \$25,000 to Dr. Hardy for expert testimony for U.S. in Klamath Tribes vs U.S. No 96-381

1997, February 10 - Dr. Hardy review of the Klamath River Basin Fisheries is discussed in Task 1 "Develop Water Quantity Model Objectives", Task 2 "Water Quantity Study Design, Task 5 "Develop a Water Quantity Model for the Klamath River"

Timeline Continued

1997, February 12 - Allegations the Klamath River Flow Study was a tribal trust responsibility of USFWS

1997, April 23-24 - Klamath River Basin Fisheries Task Force meets with Hardy. Initiates flow study for \$50,000

1997, May 6 Coho listed as threatened

1997, September - Hardy provided testimony for DOJ in Klamath Tribes vs US NO 96-381

1997, September - \$15,608 to Hardy for Expert Testimony in Klamath Basin Adjudication for BIA 1997 -

Hardy preparing PH I report for Klamath River Basin Fisheries Task Force

1998, August 19 - \$79,997 to Hardy for Klamath Basin Adjudication on behalf of BIA

1998, October 15 - Bob Anderson (DOI Solicitor) and Dr. Hardy provide interaction with BIA activity with Klamath River Basin Fisheries Task Force. Anderson communication with OWRD.

1999, February 3 - \$550,860 to Hardy for Klamath Basin Adjudication on behalf of BIA

1999, August 5 - Hardy PH 1 Study Published for Klamath River Basin Fisheries Task Force

1999, September 13 - \$115,000 to Hardy for Klamath Basin Adjudication on behalf of BIA

2000, February 3 - Scott Bergstrom (now DOI solicitor) requests payment to Hardy to continue BIA work

2000, February 18 - \$550,860 to Hardy for Klamath Basin Adjudication on behalf of BIA

2000, October 1 - Upper Klamath Lake above average lake level

2000, October 29 - \$286,694 to Hardy for Klamath Basin Adjudication on behalf of BIA

2000, October 29 - \$5,200 to Hardy to Expert Testimony to curtail Klamath Project Water for DOJ 2001,

April - Upper Klamath Lake at almost full pool (no additional storage available)

2001, April - Klamath Project Curtailed (no water to farmers)

2001, October - Draft Hardy PH II circulated

Exhibit 9, Page 18 of 52

2001-2011 - Sever Criticism of Hardy Flow Studies by National Academy of Sciences and others

2013 - ACFFOD Published

2013 May - Richard Whitman (Oregon State appointee under Kitzhaber) and Tom Paul (OWRD)

negotiate a MOU with the Yurok to not enforce the ACFFOD

2021/2022 - Yurok - Hardy Studies are the "best available science"

6067

ORIGINALPART II - WITNESS/ADR NEUTRAL/LITIGATIVE CONSULTANT AUTHORIZATIONExhibit 9, Page 19 of 52

INTER-AGENCY AGREEMENT
BETWEEN
INDIAN RESOURCES SECTION
UNITED STATES DEPARTMENT OF JUSTICE
AND
BUREAU OF INDIAN AFFAIRS
UNITED STATES DEPARTMENT OF THE INTERIOR

PARTIES

United States Department of Justice, Environment and Natural Resources Division, Indian Resources Section (Justice Department), P.O. Box 44378, L'Enfant Plaza Station, Washington, D.C. 20026-4378 and United States Department of the Interior, Bureau of Indian Affairs (BIA), Director, Office of Trust Responsibilities, 1849 C Street, MS-4559-MIB, Washington, D.C. 20240.

PURPOSE

The material and testimony developed under this Inter-Agency Agreement (Agreement) will be used to support United States' claims for or positions concerning water on behalf of the Klamath Basin Tribes (including the Hoopa Valley, Klamath, and Yurok Tribes) (Tribes) in administrative, legal, and other proceedings which may affect their fishing rights and associated water rights, or other trust resources in the Klamath Basin, California and Oregon. In order to assure that future use and development of tribal fishing rights and associated water rights are possible, water-related habitat requirements of the tribal trust fish species and non-Indian irrigation practices, as well as other water uses or issues in the Klamath Basin, must be examined and, if necessary, contested in administrative, legal, or other proceedings. This Agreement, however, does not encompass efforts directed solely toward the Klamath River Basin general stream adjudication in Oregon.

RECITALS

This Agreement is being entered into under the authority of 31 USC Section 1535 to inventory and evaluate previously conducted technical studies, as needed, and to recommend and, upon approval by the parties to this Agreement, perform additional studies to support water rights claims for or positions to be taken on behalf of the Klamath Basin Tribes. The Justice Department, in consultation with the

BIA INTERAGENCY AGREEMENT
NO: AG6K000029 MOD #2

Final Klamath River Basin Fisheries Task Force Minutes
23-24 April 1997
Eureka, California

1. Convene, review agenda, opening remarks.

Bingham: Good Morning. (A quorum was present, Attachment 1). Tom Hardy will be our facilitator for this meeting and once I take care of some routine business, I will be turning over the conduct of this meeting to him.

The topic of this two day session will be to consider the whole issue of in-stream flow studies. This has been a troubling issue for the Task Force (TF); it's one we basically had before us from the very beginning of our restoration program. What I hope we'll be able to do over the next two days is set aside our own agendas. Our basic mission is to restore the anadromous fisheries of the Klamath River Basin. Let's try to collectively come to grips with that so we can move forward with the studies in such a way that people don't feel like any in particular element is aiming right at them. To set the stage for that it's appropriate to hear what it is that our Long Range Plan (LRP) says to this effect.

Fletcher: Objective 2.E.1.C. states that we need to evaluate the in-stream flow needs using state of the art methods of each salmon and steelhead run and life stage affected by flows released from Iron Gate Dam (IGD). 2.E.2.B. and C states that we need to identify and implement methods to rectify habitat problems identified in #1 above including the following: water quality above and below IGD, in-stream flow and habitat below IGD. It goes on at 2.E.7 to say we need to require water flows adequate to achieve optimal productivity of the basin. 2.E.8. says seek the establishment of law that mandates minimum stream flow standards.

2. Business

Bingham: Thank you. Does anyone have any additions to make to the agenda?

****Motion**** (Wilkinson) Approve the agenda.

****Second**** (Bulfinch)

****Motion carries****

Iverson: Mr. Chairman, those minutes [of the meeting of February 20-21, 1997] are drafted but I'm doing a little bit of editing [These minutes were mailed to the TF on May 6, 1997].

****Motion**** (Bulfinch) Mr. Chairman, I move that we defer the approval of the February 20-21, 1997 minutes June meeting.

****Second**** (Smith)

****Motion carries****

3. Brief review of last meeting actions/general correspondence

Hamilton: There's correspondence in the package but rather than drawing from your focus here, I suggest that everybody read them (Attachment 3, Informational Handouts) on their own. The handout that is going around contains all the motions that we're aware of that the TF has passed related to a flow study and should help you understand why we are where we are today with the flow study (Handout A). If anybody is aware of any we missed, let us know.

4. Introduction of Facilitator (Dr. Thomas Hardy, Utah State University)

Hardy: Good Morning. I'd like to take a few minutes to give you some background on who I am for those who don't know me, then deal with some issues about definitions and concepts that became evident from the list of questions that was attached to the announcement of the meeting. (Handout B) I hope to address many of those questions, and then once that's set up we'll begin to move forward I hope in a progressive manner.

I've been involved with in-stream flow research and application since 1977. I'm a fisheries biologist by training. I also have a degree in Environmental Engineering. Much of my efforts at Utah State University in my institute are on the development, testing and real world applications of multi-disciplinary assessment methods primarily working at the issue of what happens when you modify habitat or modify flows in a river. I'm very active internationally, I'm the president of the

**Request, Authorization and Agreement for Fees and Expenses of Witnesses
Alternate Dispute Resolution Neutrals and Litigative Consultants**

6-23-55

Reimb

6067

1. Name/Title of Requesting Official Steven E. Carroll Acting Chief, Indian Resources Section		2a. Signature <i>Steven E. Carroll</i>		2b. Date 9/22/97		2c. DFile Number 90-2-4-1819					
3. Name of Person to be Contacted David Harder		4. Telephone No. (303)312-7328		5. Case Name, Court and Court Docket Number Klamath Basin Adjudication							
6. Legal Division or US AO ENRD/IRS SLU		7. Mailing Address (Exec/Admin/Budget Officer) Denver, CO (EOSEM)		8. Request (circle one) ☒ Original ☐ Supplemental		IF SUPPLEMENTAL ENTER ORIGINAL YREGDOC 96-15116					
9. Specialty of Expert Witness, ADR Neutral, or Litigative Consultant: <u>Civil Engineer</u> REASON FOR REQUEST (Check below and explain in Block 13) ☐ a. Expert testimony required on behalf of U.S. ☐ b. Medical Examination of Plaintiff/Witness/Defendant in Contemplation of Testimony on Behalf of U.S. ☐ c. Examination Under 18 USC Sec. 4241, Mental Competency to stand Trial only ☐ d. Dual Purpose Psychiatric Examination (Time of Offense & Competency to Stand Trial) on the mo under Criminal Justice Act YES ☐ NO ☐ ☐ e. Disposition of other party's expert witness ☐ f. Unusual Fact Witness Expense ☐ g. Alternate Dispute Resolution (ADR) Neutral Expense ☐ h. Alternate Dispute Resolution (ADR) Witness Expense ☐ i. Litigative Consultant TIN <u>87-0560247</u>											
10. Name, Address, TIN or SSN, and Phone Number of Witness, ADR Neutral, or Litigative Consultant Dr. Thomas B. Hardy Watershed Systems Group, Inc. P.O. Box 3352 Loran, UT 84323-3352				11. Anticipated Start and Ending Dates of Service (enter MO/DA/YR) (in conjunction with Block 12) a. Examination of Case b. Prep of Testimony c. Court Testimony d. Neutral/Lit. Consultant Services							
12. Expense Detail (Estimated Expenses) a. Examination of Case: <u>hrs or days</u> x \$ <u> </u> = \$ <u> </u> b. Preparation of Testimony: <u>hrs or days</u> x \$ <u> </u> = \$ <u> </u> c. Court Testimony: <u>hrs or days</u> x \$ <u> </u> = \$ <u> </u> d. Neutral/Lit. Consultant Services: <u>hrs or days</u> x \$ <u> </u> = \$ <u> </u> e. Other Expenses: Per Diem - Check if included in fee ☐ <u> </u> OR <u> </u> days x \$ <u> </u> per day = \$ <u> </u>				(Other Expenses, Cont'd) Transportation: Check if included in fee ☐ Common Carrier at Coach Class (GTA Used ☐ Yes ☐ No) \$ <u> </u> Taxi To/From Terminal: \$ <u> </u> POV: <u> </u> Miles @ \$0. <u> </u> per Mile = \$ <u> </u> *(This cost shall not exceed cost by common carrier) f. Miscellaneous Expenses (printing, exhibits, etc.) \$ <u> </u> on actual cost basis: (itemize on separate page) g. Total Estimated Cost: \$ <u>15,608.77</u>							
13. Explanation and Justification (Attach additional information if space is insufficient) (For Neutral, attach Preliminary Agreement) Please see attached Scope of work. DOI/OIA/Watershed											
Part II - Witness/ADR Neutral/Litigative Consultant Authorization 1. Date <u>9/25/97</u> 2. Approved/Disapproved 3. Authorized Amount \$ <u>15,608.77</u> 4. YREGDOC <u>15116 A</u>				5. Cost Center <u>6B1595</u> 6. OBL Month <u>7.80C 2599</u> 8. Remarks: <i>Approved</i> Approved by <i>David W. Harder</i>							
Part III - Witness/ADR Neutral/Litigative Consultant Agreement 1. Description of Duties (Explain details of service to be performed) (Attach additional information if space is insufficient) 2. Witness/ADR Neutral/Litigative Consultant: <u>Subject InVOICE</u> (Name) <u>DOJ ENRD/Expert Witness Unit</u> <u>P.O. Box 685, Ben Franklin Station</u> <u>Washington, D.C. 20044</u>								3. Government Agency: Forward invoice and Original of this form to the appropriate person within your office for processing. 4. Name/Title of Government Official (Print or Type) <u>David Harder</u> Date <u>9/16/97</u> Name/Title of Witness/ADR Neutral/Litigative Consultant <u>Dr. Thomas B. Hardy</u>			
I agree to perform the above services and appear as a witness on behalf of the government, act as an ADR Neutral, or Litigative Consultant. All payments relating to this agreement shall be in accordance with the Prompt Payment Act.											
Form OBD 41											

8049

Part I - Request for Services

1. Signature <i>[Signature]</i>		2. Date 8/13/98	2a. OJ File Number 90-6-2-70
4. Telephone No. (303) 312-7328		5. Case Name, Court and Court Docket Number Klamath Basin Adjudication	
3. Billing Address (Exec/Admin/Budget Officer) Denver, CO		8. Request (circle one) ☒ Original ☐ Supplemental	
9. IF SUPPLEMENTAL, ENTER ORIGINAL YREGDOC			
10. Witness, ADR Neutral, or Litigative Expert: Civil Engineer			
11. QUEST (Check below and explain in Block 13) Examination required on behalf of U.S. Examination of Plaintiff/Witness/Defendant in Contemplation of Testimony on Behalf of Examination Under 18 USC 4241, Mental Competency to Stand Trial only Purpose Psychiatric Examination (Time of Offense & Competency to Stand Trial) on the of under Criminal Justice Act YES [] NO [] Deposition of other party's expert witness f. Unusual Fact Witness Expense g. Alternate Dispute Resolution (ADR) Neutral Expense h. Alternate Dispute Resolution (ADR) Witness Expense i. Litigative Expert TIN: 87-0560247 87-6000528 Phone: (303) 797-3127 Fax: (303) 797-3102			
10. Name, Address, TIN or SSN and Phone Number of Witness, ADR Neutral, or Litigative Expert Dr. Thomas B. Hardy P.O. Box 3352 Logan, UT 84323-3352 10900 Oak 80322-1405		11. Anticipated start and ending Dates of Service (enter MO/DA/YR) (in conjunction with Block 12) a. Examination of Case b. Prep of Testimony c. Court Testimony d. Neutral/Lit. Expert Services (Other Expenses, Cont'd) Transportation: Check if included in fee [] Common Carrier at Coach Class: (GTA Used) Yes [] No [] Taxi To/From Terminal: POV: Miles @ \$0. per Mile = (This cost shall not exceed cost by common carrier) f. Miscellaneous Expenses (printing, exhibits, etc.) on actual cost basis: (itemize on separate page) g. Total Estimated Cost \$79,997 REMARKER: Witnesses are not entitled to Advance Payments	
12. Expense Detail (Estimated Expenses) a. Examination of Case: hrs or days x \$ = \$ b. Preparation of: hrs or days x \$ = \$ c. Court: hrs or days x \$ = \$ d. Neutral/Lit. Expert Services: hrs or days x \$ = \$ e. Other Expenses: Box Check if included in fee [] OR days x \$ per day = \$			
13. Explanation and Justification (Attach additional information if space is insufficient) (For Neutral, attach Preliminary Agreement) Interagency Agreement #AG6K000029 Bureau of Indian Affairs/Washington, DC Modification #3 Debtor Code #8049			

ORIGINAL

Part II - Witness/ADR Neutral/Litigative Expert Authorization

1. Date 8/18	5. Cost Center 881595
2. Approved/Disapproved	6. OBL Month 9808
3. Authorized Amount \$ 79,997	7. SOC 2597
4. YREGDOC 18048	8. Remarks:
Approved by: <i>[Signature]</i>	

Part III - Witness/ADR Neutral/Litigative Expert Agreement

1. Description of Duties (Explain details of service to be performed) (Attach additional information if space is insufficient)	
2. Witness/Neutral/Litigative Expert: Submit Invoice to: (Name/Address of Attorney or Admin/Fiscal Office) US DOJ/ENRD/EXPERT WITNESS UNIT P.O. BOX 885/BEN FRANKLIN STATION WASHINGTON, DC 20344-0685	5. Government Attorney: Forward invoice and Original of this form to the appropriate person within your office for processing.
3. Signature (Government Official) <i>[Signature]</i>	6. Name/Title of Government Official (Print or Type) David Harder, Trial Attorney
4. Signature (Witness/ADR Neutral/Litigative Expert) <i>[Signature]</i>	7. Name/Title of Witness/ADR Neutral/Lit. Expert Dr. Thomas B. Hardy, Civil Engineer
I agree to perform the above services and appear as a witness on behalf of the Government, act as an ADR Neutral, or Litigative Expert.	
All payments relating to this agreement shall be in accordance with the Prompt Payment Act.	

Doug Ringle, Contract Specialist



United States Department of the Interior

FISH AND WILDLIFE SERVICE

911 NE. 11th Avenue
Portland, Oregon 97232-4181

MAY - 6 1998

IN REPLY REFER TO:

Dr. Thom Hardy
Department of Civil and Environmental Engineering
Utah State University
Logan, Utah 84322-4110

Dear Dr. Hardy,

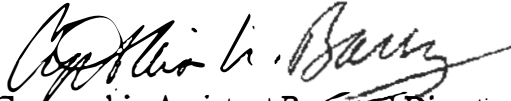
I have reviewed your draft scope of work for evaluation of instream flow needs in the lower Klamath River, which was provided to me by Robert T. Anderson of the U.S. Department of the Interior. I have no specific comments on the document, and no doubts as to its adequacy, considering your high level of expertise in the instream flow field. My purposes in writing are, first, to urge you to coordinate your evaluation of instream flow needs with the Klamath River Basin Fisheries Task Force (Task Force), and, second, to summarize for you the current status of current projects we are involved with that may contribute to the flow needs assessment.

As chair of the Task Force, I am very concerned that all work on instream flow needs in the Klamath basin be adequately coordinated. I know that you are aware of the Task Force flow needs initiative, but I only learned of your work with the Klamath Federal negotiating team through Mr. Anderson's recent memorandum. Please keep the Task Force informed of your progress, and I will ensure that we reciprocate. I suggest that you attend the next meeting of the Task Force, scheduled for June 24-26, 1998, in Klamath Falls, Oregon, to inform the Task Force of your work related to the water adjudication.

Instream flow needs assessment will be a dominant topic at the June Task Force meeting. The Task Force will consider a draft long-term study plan for instream flow needs assessment, to be provided by the technical work group of the Task Force. Your work in getting the study planning underway is appreciated. Other flow study elements which may be of interest to you are identified in an attachment to this letter. This is by no means a complete list, consisting only of projects the Fish and Wildlife Service is directly involved in as funding agency.

For more information on existing flow study projects, or to arrange to attend the June Task Force meeting, please contact John Hamilton of our Klamath River Fish and Wildlife Office, telephone (530) 842-5763.

Sincerely,


Geographic Assistant Regional Director
Klamath/Central Pacific Coast Ecoregion

Attachment

CC: Ron Cluettson ✓

EXPEDITE ^{Alternative Display} **REIM B**

PURZLAND, OR

SEP 14 1999

9107

Part I - Request for Services

1. Name/Title of Requesting Official JAMES CLEAR CHIEF, INDIAN RESOURCES SECTION	1a. Signature <i>James Clear</i>	2. Date 9/13/99	2a. DJ File Number 90-C-2-70
3. Name of Person to be Contacted DAVID HARDER	4. Telephone No. (303) 312-7328	5. Case Name, Court and Court Docket Number KLAMATH BASIN ADJUDICATION	
6. Legal Division or USAO ENRD/IRS	7. Mailing Address (Exec/Admin/Budget Officer) DENVER, CO	8. Request (circle one) (Original) (Supplemental)	IF SUPPLEMENTAL, ENTER ORIGINAL YREGDOC

9. Speciality of Expert Witness, ADR Neutral, or Litigative Expert: CIVIL ENGINEER

REASON FOR REQUEST (Check below and explain in Block 13)

- ☒ a. Expert testimony required on behalf of U.S.
☐ b. Medical Examination of Plaintiff/Witness/Defendant in Contemplation of Testimony on Behalf of U.S.
☐ c. Examination Under 18 USC § 4241, Mental Competency to Stand Trial only
☐ d. Dual Purpose Psychiatric Examination (Time of Offense & Competency to Stand Trial) on the motion of
under Criminal Justice Act YES ☐ NO ☐
☐ e. Deposition of other party's expert witness
☐ f. Unusual Fact Witness Expense
☐ g. Alternate Dispute Resolution (ADR) Neutral Expense
☐ h. Alternate Dispute Resolution (ADR) Witness Expense
☐ i. Litigative Expert TIN: 87-6000528

ORIGINAL

PHONE: 435 (303) 797-3127
FAX: 435 (303) 797-3102

10. Name, Address, TIN or SSN and Phone Number of Witness,
Dr. Thomas Hardy
UTAH STATE UNIVERSITY
Contracts and Grants
1415 Old Main Hill
Logan, UT 84322-1415

11. Anticipated start and ending Dates of Service (in conjunction with Block 12)

- a. Examination of Case _____
b. Prep of Testimony _____
c. Court Testimony _____
d. Neutral/Lit. Expert Services _____

12. Expense Detail (Estimated Expenses)

- a. Examination of Case: hrs or days x \$ = \$
b. Preparation of _____ hrs or days x \$ 82.12 = \$
c. Testimony _____ hrs or days x \$ = \$
d. Neutral/Lit. Expert Services: hrs or days x \$ = \$
e. Other Expenses: Per Diem - Check if included in fee ☐
OR _____ days x \$ per day = \$

(Other Expenses, Cont'd)

- Transportation: Check if included in fee ☐
Common Carrier or Coach Class: (GTA Used) ☐
Taxi To/From Terminal: _____
POV: _____ Miles @ \$0. _____ per M
*This cost shall not exceed cost by common carrier.
f. Miscellaneous Expenses (printing, mileage, etc.)
on actual cost basis (Itemize on separate page)
g. Total Estimated Cost

REMINDER: Witnesses are not entitled to Advance Payments

13. Explanation and Justification (Attach additional information if space is insufficient) (For Neutral, attach Preliminary Agreement)

INTERAGENCY AGREEMENT #AG6K0000029
BUREAU OF INDIAN AFFAIRS/WASHINGTON, DC
MODIFICATION NO. 5
DEBTOR CODE NO. 9107

Part II - Witness/ADR Neutral/Litigative Expert Authorization

1. Date 9/20/99	5. Cost Center 981595
2. Approved/Disapproved	6. OBL Month 3302
3. Authorized Amount \$ 115,000.00	7. SOC 2552
4. YREGDOC 19065	8. Remarks: Approved by <i>Flan</i>

Part III - Witness/ADR Neutral/Litigative Expert Agreement

1. Description of Duties (Explain details of service to be performed) (Attach additional information if space is insufficient)	
2. Witness/Neutral/Litigative Expert Submit Invoice to: (Name/Address of Attorney or Admin/Fiscal Office) USDOJ/ENRD/EXPERT WITNESS UNIT P.O. BOX 685/BEN FRANKLIN STATION WASHINGTON, DC 20044-0685	3. Government Attorney: Forward invoice and Original of this form to the appropriate person within your office for processing
4. Signature (Government Official) <i>David Harder</i>	6. Name/Title of Government Official (Print or Type) DAVID HARDER, TRIAL ATTORNEY
4. Signature (Witness/ADR Neutral/Litigative Expert) <i>Dr. Thomas B. Hardy</i>	7. Name/Title of Witness/ADR Neutral/Lit. Expert DR. THOMAS B. HARDY, CIVIL ENGINEER
5. I agree to perform the above services and appear as a witness on behalf of the Government, act as an ADR Neutral, or Litigative Expert. All payments relating to this agreement shall be in accordance with the Prompt Payment Act.	

This form is a U.S. Government work and, as such, is in the public domain in the United States of America.

Previous Editions are Obsolete

Form OBD 47

Revised Mar 1996

Doug Ringle, Contract Administrator

Exhibit 9, Page 26 of 52

U.S. Department of Justice

ENRD Request, Authorization and Agreement for Fees and Expenses of Witnesses

Part 1 Request

1. Name/Title of Recommending Official James Clear		1a. Signature		2. Date	
3. Person to be contacted		4. Case Name : Matter -- Klamath Project Curtailment of Water			
a. Name : Judith Rabinowitz		5. DJ File Number : 90-1-2-10086/1			
b. Telephone : (415) 744-6486		6. District : Oregon		7. Docket Number :	
8. Section IRS	9. Attorney Location San Francisco, CA		10. Contract Type Original		
11. Reason for Request Expert Testimony required on behalf of U.S.		12. Funding Source FEW			
13. Expert Name Thomas Hardy	14. Expertise Hydrology	15. Rates Per Hour	16a. Preparation \$115.00	16b. Testimony	
17. Mailing Address Dr. Thomas B. Hardy Watershed Systems Group, Inc. P.O. Box 3352 Logan, UT 84323-3352		18. Tax Information Tax Identification Number : 87-0560247 1185			
21. Anticipated Trial Date	19. Phone : (435) 797-3127		20. Fax : 8-435-797-3102		
23. Additional Information / Comments (Statement of Work attached, includes expense detail) The discontinued form OBD-47 with original attorney and recommending official authorizing signatures is maintained in the DOJ official contract file. The authorized funded amount shown in Part II, Item 2, shall NOT be exceeded without authorization and written modification of the Contract by the Government.		22. Total Estimated S.O.W. Cost : \$5,200.00 Reminder : Expert Witnesses are not entitled to advance payments			

Part II - Witness Authorization	
1. Date : 9/29/00	6. OBL Month : 0009
2. Authorized Amount : \$0.00 - 5,200.00	7. SOC : 1157
3. YREGDOC : 2000 - 01 - 40218	8. Approved by : <i>Thomas Hardy</i> 9/29/00
4. Cost Center : 0361960413	9. Approved on:

Part III - Witness Agreement	
1. Witness Submit invoice to : USDOJ/ENRD Expert Witness Unit P.O. Box 685, Ben Franklin Station Washington, DC 20044	
3. Signature (Government Attorney)	4. Name/Title of Government Attorney Judith Rabinowitz, Attorney
5. Signature (Expert Witness)	6. Name/Title of Expert Witness Thomas Hardy
The Expert Witness(es) agree(s) to perform the described services and appear as a witness/witnesses on behalf of the Government	
All payments relating to this agreement shall be in accordance with the Prompt Payment Act.	
March 1998 Form ENRD-236	

James T. Redwell
9/29/00

1. Name/Title of Requesting Official JAMES J. CLEAR CHIEF, INDIAN RESOURCES SECTION		1a. Signature 		2. Date 9/12/00		2a. DI File Number 90-1-2-10066/1	
3. Name of Person to be Contacted JUDITH RABINOWITZ		4. Telephone No. (415) 744-6486		5. Case Name, Court and Court Docket Number KLAMATH PROJECT CURTAILMENT OF WATER DELIVERIES			
6. Legal Division or USAO ENRD/OITC		7. Mailing Address (Exec/Admin/Budget Officer) WASHINGTON, D.C.		8. Request (circle one) ☐ Original ☒ Supplemental		IF SUPPLEMENTAL, ENTER ORIGINAL YREGDOC 	
9. Speciality of Expert Witness, ADR Neutral, or Litigative Expert: HYDROLOGY ENGINEER							
REASON FOR REQUEST (Check below and explain in Block 13) ☐ a. Expert testimony required on behalf of U.S. ☐ b. Medical Examination of Plaintiff/Witness/Defendant in Contemplation of Testimony on Behalf of U.S. ☐ c. Examination Under 18 USC§4241, Mental Competency to Stand Trial only ☐ d. Dual Purpose Psychiatric Examination (Time of Offense & Competency to Stand Trial) on the motion of _____ under Criminal Justice Act YES [] NO [] ☐ e. Deposition of other party's expert witness ☐ f. Unusual Fact Witness Expense ☐ g. Alternate Dispute Resolution (ADR) Neutral Expense ☐ h. Alternate Dispute Resolution (ADR) Witness Expense ☐ i. Litigative Expert							
10. Name, Address, TIN or SSN and Phone Number of Witness, ADR Neutral, or Litigative Expert DR. THOMAS B. HARDY/WATERSHED SYSTEMS GROUP, INC. P.O. BOX 3352 LOGAN, UT 84323-3352				11. Anticipated start and ending Dates of Service (enter MO/YR) (in conjunction with Block 12) ☐ a. Examination of Case ☐ b. Prep of Testimony ☐ c. Court Testimony ☐ d. Neutral/Lit. Expert Services			
12. Expense Detail (Estimated Expenses) ☐ a. Examination of Case: hrs or days x \$ = \$ ☐ b. Preparation of Testimony: hrs or days x \$ = \$ ☐ c. Testimony: hrs or days x \$ = \$ ☐ d. Neutral / Lit. Expert Services: hrs or days x \$ = \$ ☐ e. Other Expenses: Per Diem - Check if included in fee [] OR days x \$ per day = \$				(Other Expenses, Cont'd) Transportation: Check if included in fee [] Common Carrier at Coach Class: (GTA Used) Yes [] No [] \$ Taxi To/From Terminal: \$ POV: Miles @ \$0. per Mile = \$ *(This cost shall not exceed cost by common carrier) ☐ f. Miscellaneous Expenses (printing, exhibits, etc.) \$ on actual cost basis: (Itemize on separate page) ☐ g. Total Estimated Cost \$ 5,200 REMINDER: Witnesses are not entitled to Advance Payments			
13. Explanation and Justification (Attach additional information if space is insufficient) (For Neutral, attach Preliminary Agreement)							

1. Date _____

2. Approved/Disapproved _____

3. Authorized Amount \$ _____

4. YREGDOC _____

5. Cost Center _____

6. OBL Month _____ 7. SOC _____

8. Remarks: _____

Approved by _____

1. <u>Description of Duties (Explain details of service to be performed) (Attach additional information if space is insufficient)</u>	
2. <u>Witness/Neutral/Litigative Expert: Submit Invoice to:</u> (Name/Address of Attorney or Admin/Fiscal Office)	5. <u>Government Attorney: Forward Invoice and Original of this form to the</u> appropriate person within your office for processing.
US DOJ/ENRD/EXPERT WITNESS UNIT P.O. BOX 685/BEN FRANKLIN STATION WASHINGTON, D.C. 20044-0685	
3. <u>Signature (Government Official)</u> 	6. <u>Name/Title of Government Official (Print or Type)</u> JUDITH RABINOWITZ, TRIAL ATTORNEY
4. <u>Signature (Witness/ADR Neutral/Litigative Expert)</u>	7. <u>Name/Title of Witness/ADR Neutral/Lit. Expert</u> DR. THOMAS B. HARDY, CIVIL ENGINEER
8. <u>Date</u>	9. <u>Date</u> 7/12/00
I agree to perform the above services and appear as a witness on behalf of the Government, act as an ADR Neutral, or Litigative Expert.	
All payments relating to this agreement shall be in accordance with the Prompt Payment Act.	

Standard Expert Witness Contract Terms and Conditions

I. Contract Contents

The following items are made part of this contract by reference:

- (A) ENRD-236
- (B) Standard Terms and Conditions
- (C) Statement of work
- (D) Resume or CV
- (E) Confidentiality agreement(s)

II. Credentials Check

The government reserves the right to verify your credentials. If false information has been provided, this contract may be declared null and void.

III. Subcontracting

Subcontractors must each be identified in your statement of work. Your contract with each subcontractor must incorporate applicable language from this Expert Witness Contract pertaining to credentials check, conflicts of interest, and confidentiality agreements. If additional subcontractors are needed who were not included in the original statement of work, written notification and approval by the government is required.

IV. Conflict of Interest

(A) The government will provide the expert with the name of the case and the names of parties involved. The expert shall inform the government to the best of his or her knowledge and belief, of any organizational or personal conflicts of interest as defined below:

- (1) An organizational conflict of interest arises when the expert has interests, due to other activities or relationships with other organizations, which place the expert in a position that may be unsatisfactory or unfavorable from the government's standpoint in being able to secure impartial, technically sound, objective assistance and advice from the expert.
- (2) Personal conflicts of interest can arise when staff proposed to work on a case have previously worked for the opposing party (even in a non-related job) or if the staff proposed have a financial interest in the opposing party's business.

(B) The expert agrees that, if a conflict of interest is discovered, the expert shall make an immediate and full disclosure in writing to the government which shall include a description of the action which the expert has taken or proposes to take to avoid, eliminate or neutralize the conflict.



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Midcontinent Ecological Science Center
4512 McMurtry Avenue
Fort Collins, CO 80525-3400

GB566
K56A15
1997
B105

In Reply Refer To:
BRD/MESC/82020

November 10, 1997

File:516.07c

Memorandum

To: Technical Work Group Members of the Klamath River Fishery Task Force and Water Quantity Model Partners

From: Dr. Marshall Flug, Hydrologist and Leader, Western Riverine Ecosystems Research Team *MF*

Subject: Task 11: Final Completion Report on Water Quantity Model Development

The attached subject report, Task 11, is provided in accordance with contract requirements of the FY '97 Interagency Agreement for the Development of a Water Quantity Model. This report is revised from the Draft Task 10 report, which was distributed on August 8, 1997, and comments on that Draft were due back to the USGS by September 12, 1997.

This Task 11 report contains an extensive Appendix of printed data files, as well as a computer disk that contains the data files for eight runs using the MODSIM Water Quantity Model. These runs include the Calibration and Validation runs, and six other alternative water management simulations which were provided by the Technical Work Group.

If you have any questions or feedback, please do not hesitate to contact Marshall Flug at (970)226-9391 Voice; (970)226-9230 FAX; or EMAIL: Marshall_Flug@usgs.gov.

Attachment

FILE

Watershed Systems Group, Inc
PO Box 3352
Logan, Utah 84323-3352

Ms. Beverly Schutte
Director Expert Witness
U.S. Department of Justice
DOJ/ENRD EXPERT WITNESS UNIT
Post Office Box 685
Ben Franklin Station
Washington, D.C. 20044

*Approved
B. Schutte
1/5/98*

Date: December 29, 1997

Re: Contract Letter Modification
Case : Klamath Basin Adjudication
DJ #: 90-2-4-1819 /

Dear Ms. Schutte:

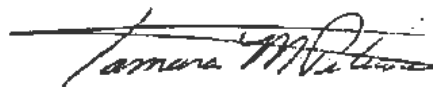
Please accept this letter as a formal request to modify our original Statement of Work to increase our rates for the following individuals:

Name	Title	Rate	Effective Date
Thomas B. Hardy	President	\$80.00/hr	10/1/97

Please note that this modification will in no way increase the cost estimate contained in our original Statement of Work, nor will it adversely affect the interests of the Department of Justice.

If you have any further questions please do not hesitate to contact me at (435) 752-4123.

Sincerely,



Tamara M. Peterson

WATERSHED SYSTEMS GROUP, INC.

P.O. Box 3352
Logan, UT 84323-3352
(435) 797-2824
FAX (435) 797-1185

Ms. Beverly Schutte
Director Expert Witness
U.S. Department of Justice
DOJ/ENRD Expert Witness Unit
PO Box 685
Ben Franklin Station
Washington, D.C. 20044

Date: January 19, 1998

Regarding: Watershed Systems Group, Inc. Overhead Rate Justification

Dear Ms. Schutte:

This letter is to explain our current overhead cost at 38%. Our overhead is calculated on all total direct costs. Total costs consist of all salaries and wages, materials and supplies, services, travel, and subgrants and subcontracts, and rental costs. This rate is effective for the period through December 31, 1998.

The rate of 38% covers our operating expenses not reimbursed directly by contracts and are broken down as follows:

- 1) Operations and Maintenance consists of things such as automobile registration and repairs, dues and subscriptions, equipment, insurance, postage and telephone calls, as primary examples.
- 2) Administration consists of professional fees such as accountants and the bookkeeper, taxes and profit.

The 38% splits out into the two categories in the following increments:

Operations and Maintenance	23%
Administration	<u>15%</u>
	38%

Exhibit 9, Page 32 of 52

If you have any further questions please contact Dr. Thomas Hardy at (435) 797-2824.

Thank you.

ATTORNEY
WORK PRODUCT

Watershed Systems Group, Inc.
1770 North Research Parkway, Suite #113
Logan, Utah 84341
TIN: 87-0560247

ATTORNEY
WORK PRODUCT

For Scott Bergstrom, Esq
Attorney - Advisor
Division of Indian Affairs
Office of the Solicitor
1849 C Street N.W. , Mail Stop 6456
Washington, DC 20240

November 29, 1996

Statement of work:

Watershed Systems Group will investigate, evaluate, and analyze fishery needs. The investigation of the water supply is necessary for the purpose of determining the source, quantity, and variability of the water resource on the Indian trust lands which is required to support tribal resources, particularly fisheries. The Watershed Systems Group will investigate, review and evaluate in-stream flow requirements to support the Tribes' reserved fishing rights in relation to the KPOP. In our investigation we will include an analysis of past and present utilization of the water supply, in particular the neighboring Bureau of Reclamation Klamath Project. A review of past and present water supply investigations and water data collection activities of Federal, State and Tribal Agencies may be required. Also, surface and ground water will be evaluated as it pertains to other non-agricultural uses, particularly fisheries.

Total sum will not exceed \$25,000 for personal services. Watershed Systems Group services in this contract shall be reimbursed at a rate of \$500 per full workday. This contract is cost reimbursable and all expenses will be reimbursed by actual expenditures incurred, up to a maximum of the applicable federal per diem rate and \$0.31 per mile. We will supply receipts for all miscellaneous expenses incurred while working on this contract.

At present it is anticipated that Dr. Thomas Hardy and R. Craig Addley will be involved in the project. In the event that additional personnel are required DOJ will be contacted and the confidentiality statements will be secured.

HARDY 62.50 / hr
ADDLEY 62.50 / hr

Exhibit 9, Page 33 of 52


Dr. Thomas B. Hardy

INTER-AGENCY AGREEMENT
BETWEEN
SPECIAL LITIGATION COUNSEL
UNITED STATES DEPARTMENT OF JUSTICE
AND
BUREAU OF INDIAN AFFAIRS
UNITED STATES DEPARTMENT OF THE INTERIOR

PARTIES:

United States Department of Justice, Special Litigation Counsel (Justice Department), 601 Pennsylvania Avenue N.W., Washington, D.C. 20004 and United States Department of the Interior, Bureau of Indian Affairs (BIA), Director, Trust Responsibilities, 1849 C Street, MS-4559-MIB, Washington, D.C. 20240

PURPOSE

The material and testimony developed under this Inter-Agency Agreement (Agreement) will be used to support United States claims for water on behalf of the Hoopa Valley, Klamath and Yurok Tribes (Tribes) in administrative and potential legal proceedings which affect their fishery and associated water rights in the Klamath Basin, California and/or Oregon with regard to the development and implementation of the Klamath Project Operations Plan (KPOP). In order to assure that future use and development of tribal fishery and associated water rights are possible, non-Indian irrigation practices, as well as other water uses in the Klamath Basin, must be examined.

RECITALS

This Agreement is being entered into under the authority of 31 USC Section 1535 to inventory and evaluate previously conducted technical studies and to recommend additional studies to support water rights claims for the above referenced Tribes. The Justice Department will select a contractor or contractors who will provide the services described in the Scope of Work. Exhibit 9, Page 34 of 52

The Justice Department, the Department of the Interior Solicitor's Office (Solicitor's Office) and the BIA Central Office will monitor the work of the contractor or contractors to assure that all material and work is technically and legally acceptable.

The contractor or contractors must be available to consult with the Justice Department, the BIA, and the Solicitor's Office throughout the course of any litigation preparation and litigation and to appear as an expert witness at trial if requested by the Justice Department. Because any potential litigation may take place some time after the work is completed, the Justice Department shall require assurances from contractors that all key personnel assigned to the investigations will be available throughout the course of the litigation. Payment for any actual court testimony and preparation of affidavits are beyond the scope of this Agreement and will be subsequently arranged between the contractor or contractors and the Justice Department.

SCOPE OF WORK:

The Justice Department will employ a contractor or contractors who will perform the following Task. The order in which the contractor or contractors will perform parts of this Task will depend on the course of proceedings and will be based on a joint decision of the Justice Department, Solicitor's Office and BIA.

TASK

The contractor must analyze the effect of the Klamath Project's operations--including those contemplated by the draft or final KPOP--upon tribal trust resources, particularly the Tribes' reserved fishing rights. The contractor must assemble, organize, evaluate, catalog and index all available data/studies related to water requirements and usages on lands receiving water from the Klamath Project. This Task may require field investigation. In particular, this Task includes:

1. Contractual Obligations of the Bureau of Reclamation

The contractor will review and evaluate the contractual obligations of the Bureau of Reclamation (BOR) for the Klamath Project, addressing the amount of water from the Project actually obligated by the contracts. Obligations include provisions relating to contracted amount of water and provisions which provide operational discretion to BOR or the Secretary, as well as whether any obligations have been lost due to abandonment, forfeiture, or other common-law water principles. The contractor will also review and evaluate lands receiving water from the Project, addressing whether those lands are actually authorized to receive water from the Project.

2. Water Requirements for Irrigation

Water supply, soils, topography, and climate determine the type of crops produced on arable lands. Consumptive use and productivity figures will be derived from the available information for all crops suitable for production on lands receiving water from the Project, differentiating between authorized lands and those lands not authorized to receive water from the Project. Cropping patterns and associated water requirements shall be determined. Evaluation must include any and all information regarding cropping pattern, crop water requirements, irrigation system efficiency and related information.

3. Hydrology

Investigation of the water supply is necessary for the purpose of determining the source, quantity, and variability of the water resource on Indian trust lands which is required to support tribal resources, particularly fisheries. The contractor's investigation must review and evaluate in-stream flow requirements to support the Tribes' reserved fishing rights in relation to the KPOP. The contractor's investigation must include an analysis of past and present utilization of the water supply, in particular the neighboring Bureau of Reclamation Klamath Project. A review of past and present water supply investigations and water data collection activities of Federal, state and tribal agencies may be required. Also, surface and ground water must be evaluated as it pertains to other non-agricultural uses, particularly fisheries.

SCHEDULE FOR COMPLETION:

The Task set out above in the "SCOPE OF WORK" section of this Agreement and the schedule on which the Task shall be completed will be determined pursuant to the joint decision of the Justice Department, the Solicitor's Office and the BIA.

OBLIGATION OF THE PARTIES

Obligations of the Justice Department:

The Justice Department shall select a contractor or contractors to furnish all materials, supplies, equipment, and labor necessary to provide the services defined in the "SCOPE OF WORK" section of this Agreement.

1. The Justice Department shall require the contractor or contractors to perform their work as specified in the "SCOPE OF WORK" section of this Agreement and according to any other specifications jointly developed by the Justice Department, the Solicitor's Office, and the BIA.
2. The Justice Department shall require the contractor or contractors to prepare a draft final report of the work, as defined in the "SCOPE OF WORK" section of this Agreement. The draft final report shall be forwarded to Justice Department, the BIA, and the Solicitor's Office for their approval by time frames to be determined at a later time. The draft final report shall include all written material and copies of all maps, charts, and illustrations planned to be presented in the final report.
3. After review and approval of the draft final report by the Justice Department, the BIA, and the Solicitor's Office, the contractor or contractors shall prepare the final report. The final report shall be approved by the Justice Department, the BIA, and the Solicitor's Office. Fifteen (15) copies of the final report shall be provided to the BIA by the Justice

Exhibit 9, Page 36 of 52

Department within sixty (60) days of the date of approval of the draft final report. This last requirement may be waived upon a joint decision of the Justice Department, the Solicitor's Office, and the BIA.

The completed final report and all negatives, photos, overlay positives, composites, maps, and all other material and data used in the production of the final report shall be the property of the United States and shall be delivered to the Justice Department. The Justice Department shall maintain this material and shall make the material available to the BIA or the Solicitor's Office upon request.

4. The Justice Department shall ensure that the contractor or contractors and any subcontractor(s) shall keep confidential all materials and information, including but not limited to, documents, reports, data, correspondence, photographs, maps, electronic storage media, calculations, and tabulations that are made available to or produced by the contractor and any subcontractor(s) under this Agreement. In conducting the work under this Agreement, the contractor or contractors and the subcontractor(s) shall not release any information or material derived from or connected with the work performed under this Agreement to any person, corporation, or governmental entity or use the products of the work performed under this Agreement for any purpose, either directly or indirectly, without the express written consent of the Justice Department, BIA, and the Solicitor's Office.

Unauthorized use or release of materials or other information to any person or organization by the contractor or subcontractor(s) will be considered a substantial breach of any Justice Department contract and ground for termination of such contract and or agreement.

The Justice Department, after consultation with the BIA and the Solicitor's Office, may authorize the contractor or contractors to release information or material to the Tribes or others to further the purposes of this Agreement. In the event that information or material is to be released by the contractor or contractors, the Justice Department will provide the contractor or contractors with a signed written authorization. The authorization will specify: the information or material to be released, the date on which the information or material will be released, and the person(s) or organization(s) authorized to received the information or material. Such authorization shall not authorize others to direct, negotiate, change, or modify any work under the contract.

5. The Justice Department shall ensure that the contractor or contractors and any subcontractor(s) do not have a conflict of interest. The contractor or contractors and any subcontractor(s) shall not, during the term of their contract, perform services as an expert or prepare, assist in the preparation of, or present testimony on behalf of any ^{Exhibit 9, Page 37 of 52} ~~entity~~ involved in any matter involving the waters and watershed of the Klamath River Basin without the express written consent of the Justice Department, the BIA, and the Solicitor's Office.

6. The Justice Department shall require the contractor or contractors to submit and adhere to a work plan and schedule of completion to be determined at a later time by mutual agreement of the Justice Department, the Solicitor's Office, the BIA, and the contractor or contractors. By mutual agreement of the contractor or contractors and the Justice Department, in consultation with the BIA and the Solicitor's office, the work plan and schedule of completion may be amended.

Obligations of BIA:

1. The BIA shall provide technical reviews and input requested by the Justice Department in a timely manner. All requests for technical reviews and input from the Justice Department to the BIA will be presented in writing. BIA review of material in connection with a request from the Justice Department on the work of this Agreement will be provided within 30 working-days of receipt of the material to be reviewed.
2. The BIA will be available to attend any meetings requested by the Justice Department in connection with BIA obligations, subject to 5 working-days notice. Such attendance shall also be subject to the availability of BIA funds to pay for the travel and any travel restrictions or regulations then in effect for the BIA.
3. The BIA shall serve as the lead agency for contact and coordination with the Tribes. The BIA will be responsible for coordination and consolidation of joint BIA/tribal efforts in connection with any issues related to the performance of this Agreement.
4. The BIA, in consultation with the Justice Department, the Solicitor's Office and the contractor or contractors, will render an opinion to the Justice Department as to whether the work of the contractor or contractors is being done in conformance with the technical specifications of any contract issued by the Justice Department.

FUNDING

The Justice Department will be reimbursed by the BIA in an amount not to exceed sixty thousand dollars (\$60,000) for Fiscal Year 1996 for costs associated with the work under this Agreement. Completion of any portion of any work for any subsequent fiscal year shall be subject to the availability of BIA funds.

PAYMENT

Exhibit 9, Page 38 of 52

Payment by BIA to the Justice Department

Payment shall be made to the Justice Department by the BIA by means of an interagency transfer of funds between the BIA and the Justice Department upon receipt of the appropriate SF-1081 forms from the Justice Department. Any adjustments to estimated costs or the "SCOPE OF

WORK" of this Agreement shall be by mutual agreement between the Justice Department and the BIA, subject to the approval of the BIA's Chief, Branch of Contracting and Grants.

Payment for Work of Justice Department Contractors:

Payment by the BIA to the Justice Department for any work performed by Justice Department contractors under this Agreement shall be made from the funds described above.

SPECIAL PROVISIONS:

Modifications:

This Agreement may be modified by mutual agreement of the Justice Department, the BIA, and the Solicitor's Office, regarding any matters, such as costs, changes in the work plan or time schedule, or changes in completion dates. Modifications to this Agreement will be subject to the availability of BIA funds. All modifications to this Agreement shall be in writing and signed by the Justice Department, the Solicitor's Office, and the BIA.

Initiation of Work:

The Justice Department shall not notify any Justice Department contractor or contractors to initiate work on any portion of any contract that is proposed to be included under this Agreement until notified, in writing, by the BIA that BIA funds are available to support the proposed work. Work on any portion of any program that is included under this Agreement is subject to the availability of BIA funds to support the work.

Agreement Extension or Termination:

This Agreement shall remain in effect until the Task outlined in the "SCOPE OF WORK" section above is completed or until this Agreement is terminated by mutual consent of all parties, pending 60 days notice.

Submission of Billing Statements:

The contractors shall submit copies of billing statements simultaneously to the Justice Department and the BIA for all work performed under the provisions of this Agreement. The billing statements shall contain, at a minimum, the following information:

1. Contractor's name, address and telephone number;
2. A short narrative statement of the work performed by task for the billing statement period;
3. An identification of Contract, Program and Part as relevant;

Exhibit 9, Page 39 of 52

4. A statement of the budget for the Program;
5. A billing showing by tasks the hours, rates and totals for each contractor staff member; the amount of costs accruing to supplies, materials and expenses; the total due, the previous totals billed and the accumulative total billed for each task.
6. Any other information required by the Justice Department.

The BIA technical representative shall review the bills submitted by the contractor and provide comments to the Justice Department Attorney having responsibility for this Agreement. The comments shall be provided within twenty (20) working days of the receipt of the contractor's bills by the BIA.

For: Bureau of Indian Affairs
Office of Trust Responsibilities

Byron J. Sheene Jr.
Chief, Branch of Contracting and Grants

Date: 16 Jul 96

For: United States Department of Justice

[Signature]
Special Litigation Counsel

Date: 18 July 1996

Joe B. Walber
Acting Deputy Commissioner, Bureau of Indian Affairs

Date: 7-16-96

[Signature]
Chief, Financial Management Group

Date: 7/18/96

ECONOMY ACT DETERMINATION

FINDINGS

- A. The Office of Trust Responsibilities enters into a Memorandum of Agreement (MOA) between the Bureau of Indian Affairs (BIA) and the United States Department of Justice. The MOA sets forth the general terms and conditions acceptable to both agencies of the Department of the Interior in a cooperative effort within the limits of available funds. The purpose is to develop material to support United States claims for water on behalf of the Hoopa Valley, Klamath and Yurok Tribes in administrative and potential legal proceedings which affect their fishing and associated water rights in the Klamath Basin, California and/or Oregon with regard to the development and implementation of the Klamath Project Operations Plan (KPOP).
- B. Under the MOA, the BIA will provide to the Department of Justice \$60,000 of the funds appropriated by Congress for Water Rights Litigation/Negotiation in fiscal year 1996 in accordance with the provisions contained in the MOA.
- C. The MOA shall continue in force and effect from the date of signature and will continue on-going work until balance of funds have been obligated in the fiscal year for which funds were appropriated.

DETERMINATION

Based upon the findings and pursuant to the Economy Act of 1932 in accordance with Section 1535, as amended, I hereby determine that it is in the best interest of the Government to acquire the services of the Department of Justice.

Mark Bradford
Acting Chief, Division of Land and Water

Randall Moser
Acting Director, Office of Trust Responsibilities

7-16-96
Date

7/14/96
Date

U.S. Department of Justice

Request, Authorization and Agreement for Fees and Expenses of Witness
Alternate Dispute Resolution Neutrals and Litigative Consultants

9-23-97

Reimbursement

6067

Part I - Request for Services			
1. Name/Title of Requesting Official Steven E. Carroll Acting Chief, Indian Resources Section		2. Signature <i>Steven E. Carroll</i>	
3. Name of Person to be Contacted David Harder		4. Telephone No. (303) 312-7328	
5. Legal Division or USAO ENRD/MRS SLU		6. Mailing Address (Exec/Admin/Budget Office) Denver, CO (BOSEM)	
7. Request (circle one) ☒ Original ☐ Supplemental		8. IF SUPPLEMENTAL ENTER ORIGINAL YREDOC 96-15116	
9. Specialty of Expert Witness, ADR Neutral, or Litigative Consultant: Civil Engineer			
REASON FOR REQUEST (Check below and explain in Block 13)			
☐ a. Expert testimony required on behalf of U.S.			
☐ b. Medical Examination of Plaintiff/Witness/Defendant in Contemplation of Testimony on Behalf of U.S.			
☐ c. Examination Under 18 USC Sec. 4241, Mental Competency to stand Trial only			
☐ d. Dual Purpose Psychiatric Examination (Time of Offense & Competency to Stand Trial) on the merits under Criminal Justice Act YES ☐ NO ☐			
☐ e. Disposition of other party's expert witness			
☐ f. Unusual Fact Witness Expense			
☐ g. Alternate Dispute Resolution (ADR) Neutral Expense			
☐ h. Alternate Dispute Resolution (ADR) Witness Expense			
☐ i. Litigative Consultant			
10. Name, Address, TIN or SSN, and Phone Number of Witness, ADR Neutral, or Litigative Consultant Dr. Thomas B. Hardy Watershed Systems Group, Inc. P.O. Box 3352 Logan, UT 84323-3352		11. Anticipated Start and Ending Dates of Service (enter MO/DA/YR) (in conjunction with Block 12) a. Examination of Case b. Prep of Testimony c. Court Testimony d. Neutral/Lit. Consultant Services	
12. Expense Detail (Estimated Expenses)		(Other Expenses, Cont'd)	
a. Examination of Case: hrs or days x \$ = \$		Transportation: Check if included in fee ☐	
b. Preparation of Testimony: hrs or days x \$ = \$		Common Carrier at Coach Class: (GTA Used ☐ Yes ☐ No) \$	
c. Court Testimony: hrs or days x \$ = \$		Taxi To/From Terminal: \$	
d. Neutral / Lit. Consultant Services: hrs or days x \$ = \$		POV: Miles @ \$0. per Mile = \$	
e. Other Expenses: Per Diem - Check if included in fee ☐		* (This cost shall not exceed cost by common carrier)	
OR days x \$ per day = \$		f. Miscellaneous Expenses (printing, exhibits, etc.) \$	
		on actual cost basis: (itemize on separate page)	
		g. Total Estimated Cost: \$ 15,608.77	
13. Explanation and Justification (Attach additional information if space is insufficient) (For Neutral, attach Preliminary Agreement)			
Please see attached Scope of work			
DOI/BIA (Wash. DC)			
Part II - Witness/ADR Neutral/Litigative Consultant Authorization			
1. Date 9/25/97		5. Cost Center 6B1595	
2. Approved/Disapproved		6. OBL Month	
3. Authorized Amount \$ 15,608.77		7. SOC 2599	
4. YREDOC 15116 A		8. Remarks: <i>Phyllis Smith</i>	
Approved by			
Part III - Witness/ADR Neutral/Litigative Consultant Agreement			
1. Description of Duties (Explain details of service to be performed) (Attach additional information if space is insufficient)			
Exhibit 9, Page 42 of 52			
2. Witness/Neutral/Litigative Consultant: Submit Invoice to: On: DOJ ENRD/Expert Witness Unit P.O. Box 683, Ben Franklin Station Washington, D.C. 20044		5. Government Attorney: Forward invoice and Original of this form to the appropriate person within your office for processing	
3. Signature (Government Official) <i>David W. Harder</i>		6. Name/Title of Government Official (Print or Type) David Harder	
4. Signature (Witness/ADR Neutral/Litigative Consultant) <i>Dr. Thomas B. Hardy</i>		7. Name/Title of Witness/ADR Neutral/Litigative Consultant Dr. Thomas B. Hardy	
I agree to perform the above services and appear as a witness on behalf of the government, act as an ADR Neutral, or Litigative Consultant.		All payments relating to this agreement shall be in accordance with the Prompt Payment Act.	

Previous Editions are Obsolete

Form OBD 47
Revised July 1996

**INTERAGENCY AGREEMENT AG6K000029
MODIFICATION 06
BETWEEN
INDIAN RESOURCES SECTION
ENVIRONMENT AND NATURAL RESOURCES DIVISION
UNITED STATES DEPARTMENT OF JUSTICE
AND
BUREAU OF INDIAN AFFAIRS
UNITED STATES DEPARTMENT OF THE INTERIOR**

1. PURPOSE

This modification amends BIA Interagency Agreement AG6K000029 and Modifications 01, 02, 03, 04 and 05 to the original agreement (the agreement) by adding additional funding. The additional funding will be used to reimburse the Department of Justice (DOJ), Indian Resources Section, for costs incurred in the development of materials and testimony to support United States' claims for or positions concerning water on behalf of the Klamath Basin Tribes (including the Hoopa Valley, Klamath, and Yurok Tribes) in administrative, legal, and other proceedings. The varied proceedings may affect the Klamath Basin Tribes' fishing rights and associated water rights, or other trust resources, in the Klamath Basin, California and Oregon.

This modification applies to those services and associated costs which will continue the effort set forth in the original Interagency Agreement and the five subsequent modifications. The additional funding provided by this modification shall not be used to cover work previously reimbursed under the base agreement and the five previous modifications. The costs which shall be considered for reimbursement include, but are not limited to, contractor(s) salaries and benefits, office expenses, travel, transportation, and subsistence expenses. All travel, transportation, and subsistence expenses shall conform to the provisions of the Federal Travel Regulations and Joint Travel Regulations (JTRs).

2. FUNDING.

a. BIA, Office of Trust Responsibilities (OTR), agrees to increase the funding for the agreement by \$550,086 from funds appropriated by Congress in Fiscal Year 2000. The original agreement in Fiscal Year 1996 and subsequent modifications (Mod 01 in FY96, Mod 02 in FY97, Mods 03 and 04 in FY98, and Mod 05 in FY99) provided funding not to exceed \$500,000.

b. BIA shall reimburse DOJ for costs associated with this effort, not to exceed an aggregate total of \$1,050,086 for the Agreement. DOJ shall notify the BIA upon the expenditure of seventy-five percent (75%) of the maximum estimated cost.

- c. At the completion of each year of this Agreement, the BIA and DOJ will jointly review the services rendered as compared to the projected workload on which the fiscal cost projection was based. Year-end deficit or surplus will not be adjusted through assessments or return of advancements. Funds transferred to DOJ and not required for services in the fiscal year committed will be used to offset the following budget year.
- d. DOJ billing shall refer to BIA Interagency Agreement Number AG6K000029 Modification 02 through Modification 06.
- e. Funding to reimburse DOJ in FY00 shall include carry-over funds from prior modifications to this Agreement, determined by DOJ to be \$182,107.51 as remaining in the FY99 funding account as of September 30, 1999, plus \$550,086 in FY00 funding. The combined total FY00 Expenditure Level will be \$732,193.51, consisting of the \$550,086 included under Modification 06 plus the carry-over funds remaining at the end of FY99. For this Agreement, funds shall be expended on a First In - First Out basis (i.e., FY99 used first, then FY00 funds).
- f. BIA agrees to reimburse DOJ via the Department of the Treasury's On-Line Payment and Collection (OPAC) system once all related costs have been calculated. DOJ and BIA-OTR shall receive all original documentation supporting costs as described in the agreement. Reimbursements to DOJ shall be billed against the BIA account or accounts in the amount or amounts indicated:

<u>Office</u>	<u>Accounting Structure</u>	<u>Funding (FY)</u>
BIA-OTR	K00462-99/00-34420-255R	\$ 67,107.51 (99/00)
BIA-OTR	P00340 99/00 99900 P0000031 253G	\$ 90,000 (99/00)
BIA-OTR	P00340 99/00 99900 P0000032 253G	\$ 25,000 (99/00)
BIA-OTR	P00340 00/01 99900 P0000031	\$550,086 (00)
(P accounts via BIA-Portland)		

3. MODIFICATION

Pursuant to the Modification provision of the Agreement, the Agreement shall be amended as follows:

On page 6 under the paragraph entitled FUNDING, *strike one hundred fifteen thousand dollars (\$115,000.00) and insert five hundred fifty thousand eighty-six dollars (\$550,086.00) for an aggregate total of \$1,050,086.00.*

All other provisions of the agreement shall remain in full force and effect.

Exhibit 9, Page 44 of 52

4. POINTS OF CONTACT

- a. DOJ
David W. Harder
999 W. 18th Street, Ste. 945
Denver, CO 80202
Telephone: (303) 312-7328
FAX: (303) 312-7379
- b. BIA-OTR
Ross Mooney
1849 C Street, N.W., MS 4510-MIB
Washington, DC 20240
Telephone: (202) 208-5480
FAX: (202) 219-1255

BIA-Portland Area Office
L. Doug Tedrick
911 N.E. 11th
Portland, OR 97232
(503) 231-2326
(503) 231-2275

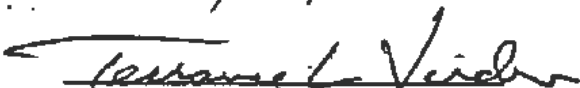
5. EFFECTIVE PERIOD

The original agreement and all modifications are effective as of the last date of signature which appears on each respective document. The total period of performance for this Interagency Agreement modification shall be from October 1, 1998 to September 30, 2000.

For: Bureau of Indian Affairs
Office of Trust Responsibilities


A Chief
Division of Land and Water Resources

Date: 2/2/00


Director
Office of Trust Responsibilities

Date: 2/2/00

Contracting Officer
Bureau of Indian Affairs

For: United States Department of Justice


Chief
Indian Resources Section

Date: 2/3/00


Executive Officer

Date: 2/2/00

Date: _____

Exhibit 9, Page 45 of 52



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Share

Interior Department Welcomes Newest Members of Leadership Team

2/22/2021

Last edited 7/12/2021

Date: Monday, Feb. 22, 2021

Contact: Interior_Press@ios.doi.gov

WASHINGTON — The Department of the Interior today announced additional members of the agency leadership team working to steward America's natural, cultural and historic resources, and honor our nation-to-nation relationship with Tribes.

Daniel Cordalis - Deputy Solicitor, Water

Daniel Cordalis has more than a decade of experience working on natural resource and complex water and land management issues on behalf of Tribal governments and conservation groups. Daniel most recently worked in private practice. He previously was an attorney with Earthjustice, the Yurok Tribe, and clerked for the Colorado Supreme Court and the Native American Rights Fund. After graduating from Rice University, Daniel received a M.A. focused on hydrology and a J.D. from the University of Colorado, Boulder. Raised in southwest Colorado, Daniel is a Navajo Tribal member and lives with his family outside Arcata, California.



PROTECT the PUBLIC'S TRUST

VIA ELECTRONIC MAIL

November 9, 2021

Robert Anderson
Office of the Solicitor
U.S. Department of the Interior
1849 C Street, NW
Washington, DC 20240

Dear Mr. Anderson,

As the chief legal officer at the Department of the Interior (Department or DOI), you are responsible for ensuring appropriate oversight and management of the Department's Ethics Office and political appointees within the Office of the Solicitor. You also are charged with monitoring the compliance of Department employees when carrying out their statutory duties, including Tribal consultations. Based on your short time in this role and the multiple alleged violations by senior political appointees that have been reported, the public has cause for concern. Together, these separate instances of potential misconduct raise questions about your supervision and commitment to fostering a culture of compliance within the Office of the Solicitor and among the Department's senior leadership.

Prior to joining the Department, your career has been remarkable in its devotion to the Tribal community and organizations dedicated to representing or advocating for Tribal issues. In fact, according to an online biography, you were one of the two founding members of the Alaska office for Native American Rights Foundation's (NARF) and spent 12 years at the organization representing Tribal clients. You have spent several years in the government, many at the Department of the Interior and at the National Commission on Indian Trust Administration. With such a background you undoubtedly have a thorough understanding of Indian law, the Department's legal obligations to Tribes, and the various restrictions around political appointees' engagement on such issues.

Balancing your experience and expertise with obligations to compliance and preserving the public's trust is a commitment made of every Senate-confirmed presidential appointee. In your case, prudence would dictate a heightened sensitivity when former clients and employers of yourself and your Deputy Solicitors are involved. Your office's impartiality in Tribal and water matters is critical to fulfilling your Constitutional, ethical, and bar duties. Yet this important principle seems to be taking a backseat to advancing the Administration's policy agenda.

We are aware of multiple instances in which political appointees under your supervision may have violated their ethics obligations and undermined the public's perception of your office's impartiality in Tribal matters.



PROTECT the PUBLIC'S TRUST

PPT first became notified of potential misconduct under your watch when it was revealed that your Deputy Solicitor for Water Resources, Daniel Cordalis, was working on a high-profile water issue that effectively overruled an opinion issued by multiple senior career water attorneys at the Department. Putting aside your decision to overrule senior career attorneys, the ethically concerning fact involved Mr. Cordalis's participation in the matter. His action appears to provide direct and predictable financial benefits to a former client. Even worse, his spouse is currently the former client's General Counsel and has been described as the "future of the Tribe," implicating a more substantial financial gain connected to the legal opinion issued by Mr. Cordalis. We filed a complaint with the DOI Inspector General (IG) in July based on the available facts and believe Mr. Cordalis may currently be under investigation for his actions.¹

The second instance was revealed recently during the confirmation hearing of Laura Daniel-Davis. The following exchange occurred between Senator Lisa Murkowski and Ms. Daniel-Davis²:

Sen. Murkowski:

During our meeting, a couple of months ago now, I raised my frustration, and I think you sense not only frustration but real anger about some of the reports that I had received regarding virtual consultations held by BLM with some of our native tribes and corporations to discuss the potential revocations or modifications of our public land orders. I raise these concerns about these tribal consultations because we have learned that **there were uninvited environmental organizations that were listening in on these consultations, including a former employer of one of the [] political officials that was leading the consultation. You indicated that you agreed that this was absolutely inappropriate**, you would find out what was going on, you would report back to us. So this is now your opportunity to report back to us. What did you do when you got back to the Department and raised this? And how can you assure me that really we're...you are going to take tribal consultation as seriously as it needs to be if you're confirmed?

Laura Daniel-Davis:

Thank you, senator, and I appreciated you raising that issue to me because **as I said to you at the time and I will reiterate here, it is inconsistent with appropriate formal consultation practice to have anyone other than tribal leaders or tribal members that the leader has asked to appear**. Or, as you know, sometimes a consultant or a lawyer may appear but again as asked to by the tribal leaders. So, I did go back, and ask, and

¹ <https://www.protectpublictrust.org/wp-content/uploads/2021/07/Cordalis-Complaint.pdf>

² <https://www.energy.senate.gov/hearings/2021/9/full-committee-hearing-to-consider-pending-nominations>



PROTECT the PUBLIC'S TRUST

understood that it may have been that the folks managing the consultation weren't aware... in a timely manner of **unauthorized people on the phone**.

Sen. Murkowski:
Do you find that acceptable?

Laura Daniel-Davis:

I don't. And what we did as we have reminded everyone of the ground rules for formal consultation and we have also reminded people that **it is sort of imperative to police such things**. And that they have the ability and should exercise it to.... Dump people off the call. I guess I will say it that way. And **we have had to, you know, talk about this across the Department** because, as you know, every program is engaging in formal tribal consultation. So, I appreciate again you bringing it to our attention. It's allowed us, in this remote environment, to make what we think and hope are improvements to the consultation process. We do take it very seriously.

Sen. Murkowski:

Well, you should take it seriously. I found it shocking. Just really shocking and disturbing. And **it just sends a message, unfortunately, that the consultation is not being handled in a manner that most of us would expect**. Mr. Chairman I have several more questions. My time has expired so I will submit these for the record.

I am sure you agree that the inappropriate conduct acknowledged by Ms. Daniel-Davis should never have occurred. Tribal consultations are important opportunities for a government-to-government conversation to take place in a forum untainted by special interests and "uninvited guests." In fact, it is your office's legal duty to ensure that formal consultations like the one discussed are conducted appropriately. Indeed, your extensive experience with Tribal consultations, along with several of your Deputy Solicitors, should be a sufficient safeguard against such violation.

In her testimony, Ms. Daniel-Davis indicated that internal discussions have occurred across the Department to rectify and prevent future procedural abuses from occurring. The public is right to wonder what your role has been in addressing this inappropriate intrusion into official government business – both to understand the source of the invitation and any corrective action that imposes accountability on those responsible. Absent firm and transparent action by the Department's Chief Legal Officer, Congress and the public are left with the impression that empty promises during a Congressional hearing are the only consequence.



PROTECT the PUBLIC'S TRUST

The need for transparency and accountability may require additional investigation based on internal DOI documents that PPT has obtained. The documents show one of the “uninvited guests” participating in the Tribal consultation was NARF. As you are aware, this organization is both a previous employer of yours and the former employer of Deputy Solicitor for Land Resources, Natalie Landreth. Further, the documents show that Ms. Landreth was one of the senior officials participating in the consultation on behalf of DOI. (Attachment A)

The optics alone raise questions about whether appointees are communicating with NARF, and other former employers or clients, in violation of their ethics agreements. The meeting script for the consultation further indicates that Nada Culver was one of the senior officials leading the meeting for the Department despite the ongoing investigation by the IG into her participation in a decision regarding the precise Public Land Order at issue during the consultation³. Is it a standard practice that investigated officials continue to work on matters under investigation until cleared? Have you endorsed or weighed in on this position?

Today, we have filed a Freedom of Information Act request to better understand how these potential violations occurred and attempt to bring transparency to this apparent pattern of misconduct and abdication of supervision. Until we know more, the public will be left wondering what assurance the Department can provide that its Chief Legal Officer is properly upholding the law, supervising direct reports, and ensuring impartiality in Tribal matters.

This is a challenging time to run the government. The Department of the Interior has several important statutory mandates to protect and responsibly steward the country’s natural resources as well as maintain its sacred Trust obligations. At a time when the public’s trust in their government is at an all-time low, it is imperative that they know leaders such as yourself and your subordinates are acting ethically and lawfully in the execution of their duties. We look forward to receiving documents requested in order to ensure the public that transparency and integrity in government remain more than just an empty promise in a public hearing.

Sincerely,

Michael Chamberlain
Director

³ <https://www.eenews.net/articles/ig-investigating-complaint-against-top-blm-official/>

From: Tom Paul
Sent: Sunday, June 16, 2013 8:31 PM
To: WHITMAN Richard M * GOV
Cc: RATCLIFFE Jesse D; [WARD Phillip C](#); [PAUL Thomas J](#)
Subject: Re Dispute Resolution Yurok

Richard, the document looks fine to me. Phil, Jesse and I will need to discuss WRD's requirements under #2 The flows will only change when the BOR notifies the Watermaster that their releases from Link River dam change.

Tom

Sent from my iPhone

On Jun 16, 2013, at 6:12 PM, "WHITMAN Richard M * GOV" <richard.m.whitman@state.or.us> wrote:

Please take a quick look and let me know if this looks ok I'd like to send it to Troy on Monday morning.

Richard Whitman
Governor Kitzhaber's Natural Resources Advisor
(503)881-7093 (cell)
richard.m.whitman@state.or.us

Begin forwarded message

From: Richard Whitman <rmwpx@msn.com>
Date: June 16, 2013, 6 02 06 PM PDT
To: Work <richard.m.whitman@state.or.us>

<Yurok Dispute Resolution Notice 6-15-2013.docx>

DISPUTE RESOLUTION NOTICE – DRAFT Background

Pursuant to Section 6.5.1 of the Klamath Basin Restoration Agreement (“KBRA”), on May 14, 2013, the Yurok Tribe provided a Dispute Initiation Notice to the Oregon Water Resources Department (“OWRD”) (collectively, the “Parties”). In the KBRA, a Dispute Initiation Notice provides an opportunity for KBRA parties to collaboratively resolve issues that may arise in the course of the implementation of the KBRA. The Parties have followed the dispute resolution procedures set forth in the KBRA and successfully resolved the issues raised in the Dispute Initiation Notice. Pursuant to KBRA Section 6.5.5, this Dispute Resolution Notice: (i) restates the disputed matter as described in the Dispute Resolution Notice, (ii) describes the terms of the resolution of the dispute, and (iii) describes any alternatives considered for resolution.

Summary of Dispute Resolution Notice

The Dispute Initiation Notice states that OWRD does not recognize flows that the U.S. Bureau of Reclamation (“BOR”) is required to release downstream in the Klamath River under applicable federal law as an authorized use of water, and that OWRD will require the BOR to cease releasing these flows under certain circumstances. The Dispute Initiation Notice also asserts that OWRD has insufficiently engaged the Yurok Tribe in addressing Klamath River flows.

Terms of Resolution

To resolve the dispute described above, OWRD makes and the Yurok Tribe acknowledges the following statements. These statements do not require a final agency action by OWRD, and do not constitute such an action.

1. OWRD has recognized and continues to recognize that the BOR must comply with its obligations under federal law concerning flows in the Klamath River. OWRD is not interfering with BOR's obligations under the Biological Opinion for the Klamath Irrigation Project, and does not intend to do so, unless otherwise directed to do so by order of a court with proper jurisdiction. Finally, OWRD acknowledges that various parties may have differences of opinion concerning a range of legal issues pertaining to BOR's release of water in order to comply with the Biological Opinion for the Klamath Irrigation Project. This paragraph reflects OWRD's position only.

2. OWRD confirms its intent to communicate with the Yurok Tribe on issues pertaining to flows in the Klamath River as they relate to implementation of the KBRA. OWRD and the Yurok Tribe will notify each other of substantive communications with other KBRA parties regarding Klamath River flows as they relate to implementation of the KBRA. OWRD and the Yurok Tribe acknowledge that a range of factors may bear on the precise timing and nature of these communications.

Alternatives Considered

By relying on the dispute resolution procedures set forth in the KBRA, the Parties swiftly and successfully resolved the issues raised by the Yurok Tribe, consistent with terms of the KBRA and applicable law. The Parties did not find it necessary to present or consider alternatives to the Terms of Resolution set forth above.

Oregon Water Resources Department



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MAY 31 2002

Mr. Kirk Rogers
Regional Director
Bureau of Reclamation, Mid-Pacific Region
2800 Cottage Way
Sacramento, CA 95825-1898

Dear Mr. Rogers:

This letter transmits the National Marine Fisheries Service's (NMFS) biological opinion regarding the Bureau of Reclamation's Klamath Project operations from June 1, 2002, through March 31, 2012 on Southern Oregon/Northern California Coasts (SONCC) coho salmon (*Oncorhynchus kisutch*). SONCC coho salmon are listed as threatened under the Endangered Species Act (ESA) (see enclosure).

On February 27, 2002, the Bureau of Reclamation (Reclamation) requested initiation of formal section 7 consultation on the effects of Klamath Project operations from April 1, 2002, through March 31, 2002 on SONCC coho salmon and their designated critical habitat. This biological opinion is based on information provided in Reclamation's February 25, 2002, biological assessment (BA), published literature and reports including the National Research Council's (2002) Interim Report "Scientific Evaluation of Biological Opinions and Endangered and Threatened Fishes in the Klamath River Basin," and Hardy and Addley's (2001) draft "Evaluation of Interim Instream Flow Needs in the Klamath River - Phase II Final Report," field investigations, other sources of information, and comments received on the May 16, 2002, draft biological opinion. After reviewing the current status of SONCC coho salmon, the environmental baseline for the action area, the effects of the proposed action and cumulative effects, it is NMFS's opinion that the operation of the Klamath Project from June 1, 2002, through March 31, 2012, as proposed, is likely to jeopardize the continued existence of SONCC coho salmon and adversely modify its designated critical habitat. Our jeopardy determination is generally based on the expectation that the proposed operation of the Project would result in incremental depletions of Iron Gate Dam flows over the course of the 10-year period and that will result in increased risk to the continued existence of coho salmon on the Klamath River.

Regulations (50 CFR §402) implementing section 7 of the Endangered Species Act require "jeopardy" biological opinions to identify any "reasonable and prudent alternatives" to the proposed action that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) in NMFS's opinion, would avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat. The reasonable and prudent alternative was identified during meetings and discussions with Reclamation in April

and May 2002 and developed after discussions with affected Tribes and after full consideration of all comments received on the May 16, 2002, draft biological opinion and reasonable and prudent alternative. NMFS thinks the final reasonable and prudent alternative meets the criteria outlined above.

Finally, NMFS used Reclamation's BA and the body of information considered in the final biological opinion as the basis for developing Essential Fish Habitat (EFH) recommendations, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, for SONCC coho salmon ESU, Upper Klamath-Trinity Rivers chinook salmon ESU and SONCC chinook salmon ESU. We have appended NMFS's EFH recommendations to this final biological opinion.

Sincerely,

A handwritten signature in black ink, appearing to read "Don Knowles". The signature is stylized with a large, bold "D" and a cursive "Knowles".

Donald R. Knowles
Director, Office of Protected
Resources

Enclosure

Biological Opinion

Klamath Project Operations

May 31, 2002

National Marine Fisheries Service

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Essential Fish Habitat consultation	Attachment A

1. INTRODUCTION

This document transmits the National Marine Fisheries Service's (NMFS) biological opinion based on its review of the Bureau of Reclamation's (Reclamation) proposed operation of the Klamath Project (Project), and the project's effects on the southern Oregon/northern California (SONC) coho salmon (*Oncorhynchus kisutch*) in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). This biological opinion is based on information provided in Reclamation's February 25, 2002, biological assessment (BA); published literature and reports including the National Research Council's (2002) Interim Report "Scientific Evaluation of Biological Opinions and Endangered and Threatened Fishes in the Klamath River Basin," and Hardy and Addley's (2001) "Evaluation of Interim Instream Flow needs in the Klamath River - Phase II Final Report;" field investigations; and other sources of information, and comments received from review of the May 16, 2002 draft Biological Opinion. A complete administrative record of this consultation is on file at the NMFS' Arcata, California field office.

The objective of this biological opinion is to determine, based on the best scientific and commercial data available, whether the proposed operation of the Klamath Project is likely to jeopardize the continued existence of threatened SONC coho salmon or result in the destruction or adverse modification of habitat of SONC coho salmon which has been determined by the Secretary to be critical. National Marine Fisheries Service's analysis of the effects of the proposed action on SONC coho salmon and its critical habitat and NMFS' conclusions resulting from that analysis are presented in this document.

On February 27, 2002, Reclamation requested formal consultation pursuant to section 7 of the ESA on the effects on SONC coho salmon from proposed Klamath Project operations between April 1, 2002 and March 31, 2012. Since SONC coho salmon were listed by NMFS in 1997, NMFS has advised Reclamation to develop a multi-year Klamath Project proposal to both assist Reclamation in meeting its section 7(a)(2) obligations and provide more certainty in Klamath Project operational plans. While NMFS is pleased that Reclamation is proposing a multi-year plan, it notes that relevant information regarding the Klamath Project and coho salmon in the Klamath River is being developed that would aid in its analysis of the proposal. Within a year, NMFS anticipates that the National Research Council (NRC) will finalize another report that takes a broader approach to evaluation of evidence for long-term requirements of the threatened and endangered fishes of the Klamath Basin. Likewise, Dr. Thomas Hardy and associates are expected to finalize their analysis of flow-habitat relationships in the main-stem Klamath River below Iron Gate Dam and refine their instream flow recommendations. When these reports are available NMFS will review them and determine whether they contain substantial new information not considered in this opinion and determine whether consultation on the 10 year plan should be reinitiated.

In addition to consulting with NMFS regarding the effects of proposed Klamath Project operations between April 1, 2002 and March 31, 2002 on listed species Reclamation is required

to consult with NMFS regarding Essential Fish Habitat (EFH), pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, as amended. NMFS has used Reclamation's Biological Assessment (BA) and the body of information considered in this opinion as the basis for developing EFH recommendations for SONC coho salmon evolutionarily significant unit (ESU), Upper Klamath-Trinity Rivers chinook salmon ESU and SONC chinook salmon ESU. NMFS' EFH recommendations are appended to this biological opinion (see attachment A).

2. CONSULTATION HISTORY

Reclamation forwarded a final BA addressing its 1998 Operations Plan for its Klamath Project to NMFS on June 2, 1998 (Reclamation 1998). The June 2, 1998, transmittal letter stated that the "...BA fulfills Reclamation's responsibilities...under Section 7 of the ESA regarding preparation of the BA and for providing information for determining the need for formal consultation." Although NMFS considered this request for formal consultation under the ESA, it arrived late in the water year and little flexibility remained to modify the plan. Therefore, formal consultation was deferred for preparation of Reclamation's 1999 Project Operations Plan.

On March 9, 1999, Reclamation forwarded a draft Klamath Project 1999 Annual Operations Plan Environmental Assessment (EA) to NMFS (and the public), and requested formal consultation under section 7 of the ESA (Reclamation 1999a). The March 9, 1999, transmittal letter stated that the "...preferred alternative in the 1999 EA is virtually the same as...[that] presented in the 1998 EA." On June 18, 1999, Reclamation modified their proposed April 1999 through March 2000 operations of the Project as described in a letter from K. Wirkus to D. Reck (Reclamation 1999b). On July 12, 1999, NMFS issued a biological opinion on operation of the Project through March 2000 (1999 Opinion, NMFS 1999).

On April 4, 2000, NMFS informed Reclamation that the 1999 Opinion and associated incidental take statement had expired on March 31, 2000, and that they should request ESA section 7 consultation regarding operation of the Klamath Project (NMFS 2000).

On April 26, 2000, Reclamation acknowledged that section 7(d) of the ESA prohibits the irreversible and irretrievable commitment of resources that foreclose the formulation of reasonable and prudent alternatives which would avoid violating section 7(a)(2) of the ESA (Reclamation 2000a). Specifically, the April 26, 2000, letter stated that "[b]ased on the information available to Reclamation at this date, we have determined that the proposed flows [included in the April 26, 2000, letter]...are both sufficient and necessary to avoid possible 7(d) foreclosures and to fulfill Reclamation's obligation to protect Tribal trust resources."

On January 22, 2001, Reclamation requested initiation of formal ESA section 7 consultation regarding the ongoing operation of the Project, and forwarded a BA detailing their proposed operation of the Project into the future. NMFS subsequently issued an April 6, 2001, biological opinion (2001 Opinion, NMFS 2001a) in response to Reclamation's request. The 2001 Opinion

found that the proposed operation of the Project posed jeopardy to SONC coho salmon, listed as threatened under the ESA. This determination was generally based on the expectation that the proposed operation of the Project would result in the continued decline in habitat conditions in the Klamath River below Iron Gate Dam. As a result, the survival and abundance of several freshwater life history stages of coho salmon would be expected to decrease and appreciably reduce the likelihood of survival and recovery of SONC coho salmon. Accordingly, NMFS included a reasonable and prudent alternative (RPA) to the proposed Project operation in the 2001 Opinion (NMFS 2001a). The RPA included a minimum flow release regime for Iron Gate Dam, based on the best information available at the time the 2001 Opinion was issued.

Because of the expectation that additional information and analyses relevant to the relationship between Iron Gate Dam flows and suitable salmonid habitat (e.g., the Phase II Klamath River flow study report) would become available within a few months following the issuance of the NMFS 2001 Opinion, the RPA only included minimum Iron Gate Dam flows for the April through September 2001 period. In the 2001 Opinion (NMFS 2001a), NMFS stated the intention to prepare a supplemental biological opinion and RPA, addressing all water year types. Additionally, NMFS stated that the supplemental biological opinion could include a more refined minimum Iron Gate Dam flow regime for future “critically dry” water years (as defined by Reclamation), based on any new information or analyses.

Because we had not yet completed our supplemental biological opinion, we were concerned that Reclamation did not have incidental take coverage under section 7(a)(2) of the ESA for Klamath Project operations beyond September 30, 2001. To ensure that there was no lapse in Reclamation’s incidental take coverage for the Klamath Project operations, Reclamation requested, and NMFS provided, an amendment to its 2001 Opinion (NMFS 2001a), on September 28, 2001, with recommended flows for the October through December 2001 period (NMFS 2001b), and a second amendment on December 28, 2001, with recommended flows for the January through February 2002 period (NMFS 2001c).

Subsequently, on February 27, 2002, Reclamation requested initiation of formal ESA section 7 consultation regarding the ongoing operation of the Klamath Project. The February 27, 2002, letter included a “Final Biological Assessment of the Effects of Proposed Actions Related to Klamath Project Operation (April 1, 2002 - March 31, 2012) on Federally-listed Threatened and Endangered Species” (Project operations BA, Reclamation 2002).

On March 27, 2002, NMFS received a letter from Reclamation regarding its proposed operation of the Klamath Project for the period between April 1 and May 31, 2002 only. In the letter, Reclamation proposed to operate the project consistent with proposed operations for a “below average water year” as described in its February 2002 BA and requested that NMFS concur with Reclamation’s determination that the proposed operation of the project during that period would not likely adversely affect coho salmon. In a letter to Reclamation on March 28, 2002, NMFS concurred with Reclamation’s “not likely to adversely affect” determination for April through May 2002 time period. Our letter also stated that, “this concurrence for April and May 2002,

does not preclude NMFS from arriving at a different conclusion for below average year operations in its biological opinion, which it expects to complete by June 1, 2002, based on the best scientific data available at the time.”

On May 16, 2002, NMFS transmitted its draft biological opinion and reasonable and prudent alternative to Reclamation. That same day, Reclamation posted the draft opinion on its website and requested comments on the document until May 24, 2002. Extensive comments were received from water users, tribes, a fishing organization, private citizens, an environmental organization, and the California Department of Fish and Game. NMFS has considered all of these comments and made appropriate changes to the biological opinion and reasonable and prudent alternative where appropriate.

3. BACKGROUND

The Project is located in southern Oregon and northern California and provides irrigation water for approximately 220,000 acres in three counties located in Oregon and California. Project water is stored primarily in Upper Klamath Lake in the headwaters of the Klamath River Basin and Gerber and Clear Lake reservoirs in the Lost River watershed. Project facilities are located upstream of Iron Gate Dam, owned and operated by PacifiCorp, which is currently a barrier to anadromous salmonid migrations in the main stem Klamath River. The development of dams in this location of the Klamath River began with Klamathon Dam prior to 1900. Copco No. 1 dam was completed in 1918, and by 1921 Link River Dam was constructed to supply water for irrigated agriculture and wildlife refuges, and to supply power. The construction of Copco No. 2 dam was completed in 1925, supplying more hydroelectric power. Due to high fluctuations in flow releases from Copco, the United States Bureau of Fisheries recommended an “equalizing dam” be constructed below Copco No. 2 dam to stabilize flows. Iron Gate Dam construction was completed in 1962 and is located at approximately river mile 190. A minimum flow regime was prescribed in the Federal Energy Regulatory Commission (FERC) license covering operation of Iron Gate Dam.

Although a myriad of human induced and natural factors affect fish species of concern in the Klamath River, Project operation affects the quantity, quality, and timing of water available for release from Iron Gate Dam during much of the year. In turn, flow releases from Iron Gate Dam affect the quantity and quality of aquatic habitat in the main stem Klamath River in California. Investigations into an appropriate flow regime below Iron Gate Dam have resulted in several recommendations for flows to address interests in the Klamath River below Iron Gate Dam. Ongoing data collection and analysis are expected to provide refined recommendations in the future. These topics are discussed in the “Effects of the Action” section of this biological opinion.

The curtailment of water available for 2001 irrigation deliveries and for use by National Wildlife Refuges precipitated a number of events. These events include accelerated efforts to identify and presumably prepare to implement Klamath Basin-wide actions that could improve listed fish

habitat conditions, and increased certainty regarding the availability of water supplies for irrigated agriculture and National Wildlife Refuges. NMFS is encouraged that these efforts may help identify important restoration actions for Klamath River salmon habitat, identify sources of funding for these actions, and establish implementation schedules. Although not part of the “proposed action” section of Reclamation’s BA (Reclamation 2002) discussed below, the BA did include an appendix of actions that could potentially lead to improved habitat conditions for fish listed under the ESA. NMFS concurs with Reclamation that these studies and programs could benefit coho and has incorporated some of them as appropriate as part of the reasonable and prudent alternative.

The NRC Committee on Threatened and Endangered Fishes in the Klamath River Basin (NRC Committee) reviewed Reclamation’s biological assessment (2001) and the NMFS biological opinion of 2001 regarding the effects of Klamath Project operations on coho salmon (NRC 2002a). In that review, they completed an interim assessment of the scientific information used by the agencies and other relevant scientific information, and they considered the degree to which the biological assessment and biological opinion were supported by that information. The Committee did not find scientific support for NMFS’ proposed minimum flows as a means of enhancing the maintenance and recovery of the coho population. However, the Committee noted that progressive depletions of flows in the Klamath River main stem would at some point be detrimental to coho salmon through stranding or predation losses. Thus, incremental depletions beyond those that are reflected in the recent historical record could be accomplished only with increased risk to salmon. The proposal put forth by Reclamation in its 2001 biological assessment could lead to more extreme suppression of flows than has been seen in the past and cannot be justified either. The Committee concluded that on the whole, there is no convincing scientific justification at present for deviation from flows derived from operational practices in place between 1990 and 2000.

The NRC Committee’s conclusion stands in contrast to the conclusions of the Hardy Phase I (1999), which was considered by the Committee, and the draft Hardy and Addley Phase II (2001) reports which suggest increased flows would aid restoration and the maintenance of aquatic resources within the main stem of the Klamath River.

Hardy Phase I (1999) provides interim minimum flow recommendations to address minimum instream flows required to support ecological needs of aquatic resources, particularly anadromous fish species, in the Klamath Basin. Subsequently, Hardy and Addley (2001) refined those flow recommendations to address variable hydrologic conditions in the Basin. They state, “These flow recommendations are necessary to aid restoration efforts and the maintenance of the aquatic resources within the main-stem Klamath River in light of the Department of Interior’s trust responsibility to protect tribal rights and resources as well as other statutory responsibilities, such as the Endangered Species Act.”

Hardy and Addley (2001) recognize that many other factors within the Klamath Basin, such as appropriate flow regimes in the tributary systems, and a variety of land-use related restoration

efforts, will be required before successful restoration can be achieved, but restoration of Klamath River flows is an important first step. Hardy and Addley (2001) recognize that the Klamath River hydrograph has been altered substantially by water development in the upper Klamath Basin and in tributary basins, such as the Shasta and Scott valleys. Their report presents recommendations, based on their estimates of water availability, that would restore the shape of the natural hydrograph and thereby begin to recreate hydrologic conditions that are more natural in the lower Klamath Basin. Hardy and Addley assert that the native fish community, including threatened coho salmon, would benefit from restoration of these conditions. The general assumption underlying the draft Hardy and Addley (2001) report is that aquatic species will react to changes in the hydraulic environment (pg. 154, Hardy and Addley 2001).

The NRC Committee on Endangered and Threatened Fishes in the Klamath River Basin also recognized that changes in the flow regime in the Klamath River may affect other fishes (e.g., ESUs of steelhead and chinook salmon), but they restricted their analysis to only the biological assessment and opinion on the affects of the Project on coho salmon. While the committee did not dispute that coho might benefit from restoration of the normal hydrograph, they state that although modeling habitat may be useful, convincing evidence of a relationship between the welfare of coho and environmental conditions must be drawn to some extent from direct observations. For example, year class strength, abundance of various life history stages, or other biological indicators of success, when related to specific flow conditions, would greatly improve the utility of modeling and other information.

Likewise, in its April 30, 2002 response to NMFS' request for clarification of several issues in the interim report, the Committee reiterated its finding that the evidence and arguments for increased flows in the main stem were weak. For example, while coho smolts should benefit from higher flows that would reduce migration time and exposure to predation, there was no evidence from existing information to support that conjecture. Neither did the Committee find convincing evidence in the 2001 biological opinion or other documents that the main stem is a significant rearing area for coho. The Committee's findings are a function of the lack of information on distribution and abundance of coho adults, spawners, and juveniles throughout the Klamath River Basin, and the lack of studies focused on coho and factors limiting its population in the Klamath River Basin.

The Final ESA Section 7 Consultation Handbook (USFWS and NMFS 1998) includes the following instructions for proceeding with consultation when there is an absence of conclusive scientific information:

If the action agency... insists consultation be completed without the data or analyses requested, the biological opinion... should document that certain analyses or data were not provided and why that information would have been helpful in improving the data base for the consultation...The Services are then expected to provide the benefit of the doubt to the species concerned with respect to such gaps in the information base (H.R. Conf. Rep. No. 697, 96th Cong., 2nd Sess. 12 (1979)).

The approach of giving the benefit of the doubt to the species concerned has been termed the precautionary approach. The precautionary approach is becoming a prominent tool in conservation biology as a risk management tool. The NRC Committee on Threatened and Endangered Fishes in the Klamath Basin stated in its April 30, 2002 letter of clarification that the committee did not conclude that NMFS must be wrong. While the committee found the evidence and arguments for main-stem flows to be weak, they stated this finding does not necessarily mean that NMFS' recommendations were incorrect. NMFS' view of the interim report and the clarifying letter is that they point out more specific information needs to be developed to understand the effect that modification of flows has had on coho salmon and to determine the extent to which the natural hydrograph needs to be restored to ensure the long-term survival and recovery of coho salmon. While some studies could be concluded rather quickly (in a few years), studies necessary to correlate year class strength or other biological indicators of success with flows will be difficult given the small size and scattered nature of the present native coho population and will likely take several coho life cycles (i.e., a decade or more) to demonstrate these correlations with scientific rigor. Therefore, NMFS has taken a cautious approach to evaluating Reclamation's proposed action and has considered the body of evidence available to it including the interim NRC report and clarifying letter and the draft Hardy and Addley report.

4. DESCRIPTION OF THE PROPOSED ACTION - Klamath Project 2002-2012

The description of Reclamation's proposed operation of the Klamath Project was provided in their February 25, 2002, final biological assessment regarding Project operations (Reclamation 2002). Reclamation proposes to operate the Project to divert, store, and deliver (from storage) Project water consistent with applicable law. Proposed operations would begin on April 1, 2002, and continue through March 31, 2012. After consultation under the ESA with NMFS and the U.S. Fish and Wildlife Service, Reclamation will develop an operations plan that provides for the continued operation of the Project for a ten-year period. Actions proposed within the 10-year proposed operation of the Project as described in the BA include providing water for agriculture pursuant to perpetual water contracts and temporary water contracts. The three primary Project reservoirs used for diversion, storage and delivery of water for Project purposes are Upper Klamath Lake, Clear Lake, and Gerber Reservoirs. Reclamation's 1992 Biological Assessment (Reclamation 1992) and its November 2000 Klamath Project Historic Operation report (Reclamation 2000b) describe the Project features and their operation. The reader should refer to those sources for a detailed description of the facilities.

4.1 Annual Operations Planning Criteria

Reclamation generally proposes to operate the Project consistent with the historic operation of the Project from water year 1990 through water year 1999 in such a way as to achieve or exceed the Iron Gate Dam flows that resulted from those operations. Reclamation proposes its Project operations planning as a four-step process:

Step 1: Reclamation will determine the water year type (above average, below average, dry or critically dry) using a 70 percent probability of exceedence and Natural Resources Conservation Service's April 1 runoff forecast. Water year types are defined in the January 22, 2001, Reclamation Project biological assessment. These water year types are defined in terms of April through September inflow to Upper Klamath Lake: Above Average (>500,400 acre feet [af]); Below Average (312,800 - 500,400 af); Dry (185,000 - 312,800 af); and Critically Dry (<185,000 af).

Step 2: Reclamation will preliminarily estimate the annual water supply that would be available for irrigation and refuge deliveries under the following criteria:

Upper Klamath Lake, Gerber Reservoir, and Clear Lake levels: Based on lake levels no lower than the minimum end-of-month elevations for the ten-year period **and,**

Klamath River flows below Iron Gate Dam for Above Average and Below Average Years: Based on daily average river flows no lower than the respective ten-year *minimums* or FERC flows, whichever are greater; **or**

Klamath River flows below Iron Gate Dam for Dry and Critically Dry Years: Based on daily average river flows no lower than the observed ten-year *minimums*.

Step 3: Reclamation will estimate the annual water supply that would be available for irrigation and refuge deliveries under the following criteria:

Upper Klamath Lake, Gerber Reservoir, and Clear Lake levels: Based on lake levels no lower than the average end-of-month elevations for the ten-year period **and,**

Klamath River flows below Iron Gate Dam for Above Average and Below Average Years: Based on daily average river flows no lower than the respective ten-year *minimums* or FERC flows, whichever are greater; **or**

Klamath River flows below Iron Gate Dam for Dry and Critically Dry Years: Based on daily average river flows no lower than the observed ten-year *averages*, plus a pulse of 10,000 acre feet of water in April to facilitate smolt downstream migration.

Step 4: Finally, Reclamation will determine the size of a water bank by calculating the difference in Project water supply between proposed operations (Step 3) and preliminary calculations (Step 2). Reclamation states that the purpose of the water bank is to provide additional water supplies for fish and wildlife purposes and to enhance tribal trust resources. Reclamation anticipates the size of the water bank to be up to 100,000 acre feet.

Step 1 of the operating criteria is the routine method Reclamation has historically used to determine water year type on an annual basis. Steps 2 through 4 appear to be new to Project

operation planning. In Steps 2 and 3 of the operating criteria, Reclamation will utilize minimum or average river flows from water years 1990 through 1999, varying by water year type. During “dry” and “critically dry” water years, Reclamation will provide a pulse of 10,000 acre feet of water to be released in April. However, except for “critically dry” water years, there is no difference between Step 2 and Step 3 for river flows for above average, below average, and dry water year types. For critically dry years, the only difference is that ten-year **average** critically dry water year river flows will be used in Step 3 instead of the 10-year **minimums** critically dry water year river flows proposed in Step 2.

Reclamation is proposing to use the above criteria to “provide boundaries” for the proposed action (i.e., water supply for irrigation and refuges) based on actual minimum and average lake levels and Iron Gate Dam river flows that occurred during water years 1990 through 1999 (Reclamation 2002). The BA states that Project operations must stay within the minimum and maximum river flow values and will not go lower than the minimum. On the other hand, Reclamation reports that “actual flows could be lower than the proposed operation” (email from B. Davis, Bureau of Reclamation, March 18, 2002) and that “the proposed action does not commit to specific river flows...rather, it uses flows and lake levels experienced during the 1990's to aid in the development of operating criteria” (email from M. Ryan, Bureau of Reclamation, March 5, 2002). Also, in a May 24, 2002, letter to NMFS, Reclamation clarified that the “proposed action will result in flows no lower than the minimums observed during water years 1990 through 1999, varying by water year type...” and “In rare instances...flows may drop as low as the minimums for the 1990's by water year type.” For these reasons, NMFS concludes that Reclamation is proposing to use the specific operating criteria described above (Steps 1 through 4) to assist in the estimation of the annual water supply that would be available for irrigation and refuge delivers. Reclamation would use Step 3 to establish targets, as opposed to minimum standards, for minimum river flows and lake levels for planning purposes only. For instance, given use of a 70 percent exceedence forecast, less water than forecast will be available on average 30 percent of the time. In these instances, Reclamation would implement the water bank to meet the target flows. If contractual obligations have first priority, then operating targets for river flows or lake levels may not be met in years when realized hydrology turns out to be less than forecasted on April 1. During those years when less water will be available, and the water bank is insufficient to meet minimum flows Reclamation would reinitiate consultation.

For the purpose of its analysis of Project effects on coho salmon in this biological opinion, NMFS assumes Reclamation's proposed operation of the Klamath Project will achieve or exceed the Iron Gate Dam flows reported in Table 5.9 of the biological assessment. NMFS is not analyzing the potential effects to coho if actual Iron Gate Dam flows are lower than those reported in Table 5.9.

Reclamation anticipates annual water bank requirements of up to 100,000 acre feet, depending on year type. Although the mechanism for establishing a water bank is not specified in the BA, Reclamation believes, based on experience during the 2001 drought and progress in investigating water supply enhancement, that several sources, including offstream storage, irrigation demand

reduction, and groundwater development hold promise and may aid in establishing the water bank. Off-stream storage opportunities in Agency Lake Ranch, Lower Klamath area lands, and winter storage in the Tule Lake area. Irrigation demand reduction, would involve compensating farmers to idle their lands in any given year. Ground water conjunctive use would involve use of wells to supplement surface water supplies. Reclamation indicates in the BA that it has authority to pursue these elements and develop a water bank.

4.2 Ramping Rates

Reclamation's proposed Project operations do not include providing for any specific Iron Gate Dam ramping-down rates during any time period for any water year type.

4.3 Coordination

Reclamation proposes to meet with the USFWS, NMFS, Klamath Basin Tribes, PacificCorp, and irrigation districts periodically to coordinate activities and discuss water supply conditions, species status, and available options for Project operation and prepare an annual report documenting previous year's activities.

4.4 Other Proposed Actions

Reclamation is proposing other actions that may reduce entrainment of suckers into the A-Canal from Upper Klamath Lake and provide passage at Link River Dam for suckers.

4.5 Klamath Basin Water Supply Enhancement Act

Reclamation is proposing to conduct feasibility studies authorized by the Klamath Basin Water Supply Enhancement Act to study enhancing the water supply available for Project use. Implementation of actual projects or programs would be contingent upon the results of the feasibility studies, Congressional approval, authorization, and appropriation, and completion of appropriate environmental compliance activities. Whether this potential additional water supply would be used for fish and wildlife enhancement is not specified in the biological assessment. Moreover, given the amount of time necessary to develop new water supplies, actual increases in available water supplies for either Project purposes or fish and wildlife enhancement will not be realized for several to many years from now.

4.6 Conservation Measures

Although Reclamation's biological assessment includes a list of actions that could be implemented to improve habitat conditions for coho salmon in the Klamath Basin, Reclamation is not proposing to implement them or any other specific measure to improve habitat conditions for SONC coho salmon as part of their proposed action (see Appendix A, Reclamation 2002).

5. DESCRIPTION OF THE ACTION AREA

The action area is defined as the Klamath River downstream of Iron Gate Dam, located at approximately river mile 190, in northern California.

6. STATUS OF THE SPECIES AND CRITICAL HABITAT

6.1 Species Description

The coho salmon is an anadromous salmonid species that was historically widely distributed throughout the North Pacific Ocean from central California to Point Hope, Alaska, through the Aleutian Islands, and from Anadyr River, Russia, south to Hokkaido, Japan. Coho salmon are very similar in appearance to chinook salmon (*O. tshawytscha*) while at sea (blue-green back with silver flanks), but they are smaller than chinook salmon. Coho salmon adults can be distinguished from small chinook salmon by the lack of spots on the lower portion of the tail. During the twentieth century, naturally-producing populations of coho salmon have declined or have been extirpated in California, Oregon, and Washington. The coho salmon status review identified six distinct population segments (Evolutionarily Significant Units - ESUs) in these states and noted that natural runs in all ESUs are substantially below historical levels (Weitkamp et al. 1995). The action area is within the range of the SONC coho salmon ESU.

6.2 Life History

General life history information for coho salmon is summarized below. Further information is available in the status review (Weitkamp et al. 1995), the proposed rule for listing coho salmon (July 25, 1995; 60 FR 38011), and the final rule listing the SONC coho salmon ESU (May 6, 1997; 62 FR 24588).

In contrast to the life history patterns of other Pacific salmonids, coho salmon generally exhibit a relatively simple three-year life cycle. They spend approximately 18 months in fresh water and 18 months in salt water (Shapovalov and Taft 1954). The primary exception to this pattern are “jacks,” which are sexually mature males that return to fresh water to spawn after only 5 to 7 months in the ocean. Most coho salmon enter rivers between September and February and spawn from November to January (Hassler 1987), and occasionally into February and March (Weitkamp et al. 1995). Coho salmon river entry timing is influenced by many factors, one of which appears to be river flow (Sandercock 1991). In addition, many small California stream systems have sandbars that block their mouths for most of the year except winter. In these systems, coho salmon and other Pacific salmonid species are unable to enter the rivers until sufficiently strong freshets open passages through the bars (Weitkamp et al. 1995). In general, earlier migrating fish spawn farther upstream within a basin than later migrating fish, which enter rivers in a more advanced state of sexual maturity (Sandercock 1991). Spawning is concentrated in riffles or in gravel deposits at the downstream end of pools with suitable water depth and velocity.

Coho salmon eggs incubate for approximately 35 to 50 days between November and March. The duration of incubation may change depending on ambient water temperatures (Shapovalov and Taft 1954). Successful incubation depends on several factors including dissolved oxygen levels, temperature, substrate size, amount of fine sediment, and water velocity. Fry (young-of-the-year) start emerging from the gravel two to three weeks after hatching (Hassler 1987). Following emergence, fry move into shallow areas near the stream banks. As coho salmon fry grow larger, they disperse upstream and downstream and establish and defend a territory (Hassler 1987).

During the summer, coho salmon fry prefer pools and riffles featuring adequate cover such as large woody debris, undercut banks, and overhanging vegetation. Juvenile coho salmon prefer to over-winter in large main stem pools, backwater areas and secondary pools with large woody debris, and undercut bank areas (Hassler 1987; Heifetz et al. 1986). Juveniles primarily eat aquatic and terrestrial insects (Sandercock 1991). Coho salmon typically rear in fresh water for up to 15 months, then migrate to the sea as smolts between March and June (Weitkamp et al. 1995). Coho salmon smolts have been observed emigrating through the Klamath River estuary in mid-to late-May when water temperature ranged from 53.6 to 68°F (CDFG 2002).

While living in the ocean, coho salmon remain closer to their river of origin than do chinook salmon (Weitkamp et al. 1995). Nevertheless, coho salmon have been captured several hundred to several thousand kilometers away from their natal stream (Hassler 1987). Coho salmon typically spend two growing seasons in the ocean before returning to their natal streams to spawn as three-year-olds.

6.3 Population Trends

Available historical and recent SONC coho salmon abundance information is summarized in the NMFS coast-wide status review (Weitkamp et al. 1995). Here are some excerpts from this document:

Gold Ray Dam adult coho passage counts provide a long-term view of coho salmon abundance in the upper Rogue River. During the 1940s, counts averaged about 2,000 adult coho salmon per year. Between the late 1960s and early 1970s, adult counts averaged fewer than 200. During the late 1970s, dam counts increased, corresponding with returning coho salmon produced at Cole Rivers Hatchery. Coho salmon run size estimates derived from seine surveys at Huntley Park near the mouth of the Rogue River have ranged from ca. 450 to 19,200 naturally-produced adults between 1979 and 1991. In Oregon south of Cape Blanco, Nehlsen et al. (1991) considered all but one coho salmon population to be at "high risk of extinction." South of Cape Blanco, Nickelson et al. (1992) rated all Oregon coho salmon populations as "depressed."

Brown and Moyle (1991) estimated that naturally-spawned adult coho salmon returning to California streams in the late 1980's were less than one percent of their abundance at mid-century, and indigenous, wild coho salmon populations in California did not exceed

100 to 1,300 individuals. Further, they stated that 46 percent of California streams which historically supported coho salmon populations, and for which recent data were available, no longer supported runs.

No regular spawning escapement estimates exist for natural coho salmon in California streams. California Department of Fish and Game (CDFG, 1994a) recently summarized most information for the northern California region of this ESU. They concluded that "coho salmon in California, including hatchery populations, could be less than six percent of their abundance during the 1940s, and have experienced at least a 70 percent decline in the 1960s." Further, they reported that coho salmon populations have been virtually eliminated in many streams, and that adults are observed only every third year in some streams, suggesting that two of three brood cycles may already have been eliminated.

The rivers and tributaries in the California portion of this ESU were estimated to have average recent runs of 7,080 natural spawners and 17,156 hatchery returns, with 4,480 identified as "native" fish occurring in tributaries having little history of supplementation with non-native fish. Combining recent run-size estimates for the California portion of this ESU with Rogue River estimates provides a rough minimum run-size estimate for the entire ESU of about 10,000 natural fish and 20,000 hatchery fish (May 6, 1997; 62 FR 24588).

6.4 Klamath River Basin Population Abundance and Distribution Information

Limited information exists regarding coho salmon abundance in the Klamath River Basin. Adult and juvenile coho salmon are observed in tributaries and the main stem of the Klamath River; however, these observations often occur incidentally to their main purpose of determining fall chinook salmon escapement. Most observations of adult coho salmon occur at weir, hatchery and tribal fishery locations. Once the counting of fall chinook ends, the weirs are removed prior to high winter flows. Therefore, counting efforts may not include a portion of the coho salmon migration because coho spawning is known to extend later into the season than the chinook spawning. Spawning and carcass surveys have been conducted in both tributaries and the main stem Klamath River. However, these surveys have generally been incomplete and been conducted on an inconsistent basis due to the constraints of funding these efforts, and working in high flows.

The sampling of juvenile coho salmon occurs in the Klamath River and selected tributaries. While adult and juvenile counts are valuable for documenting the presence or absence of coho salmon in specific areas during key time periods, they have limited value for determining exact population abundance. However, these counts provide an indication of the low abundance and precarious status of coho salmon populations in the Klamath River Basin.

Coho salmon occur in the main stem Klamath River year round, and coho also inhabit a number of Klamath tributaries (Henriksen 1995; INSE 1999; Yurok Tribe 2001; CDFG 2002).

- C Between Iron Gate Dam and Seiad Valley, coho salmon populations are known to occur in Bogus Creek, Little Bogus Creek, Shasta River, Humbug Creek, Little Humbug Creek, Empire Creek, Beaver Creek, Horse Creek, and Scott River.
- C Between Seiad Valley and Orleans, coho salmon populations are known to occur in Seiad Creek, Grider Creek, Indian Creek, Elk Creek, East Fork Elk Creek, Clear Creek, Dillon Creek, China Creek, Fort Goff Creek, Portuguese Creek, Swillup Creek, Independence Creek, Ukonom Creek, and Salmon River.
- C Between Orleans and Klamath (mouth of the river), coho salmon populations are known to occur in Camp Creek, Trinity River, Turwar Creek, Blue Creek, West Fork Blue Creek, Nickowitz Creek, One-Mile Creek, Crescent City Fork, Tectah Creek, Hunter Creek, East Fork Hunter Creek, Mynot Creek, Hoppaw Creek, Saugep Creek, Waukell Creek, McGarvey Creek, Tarup Creek, Omagaar Creek, Pularvasar Creek, Ah Pah Creek, Bear Creek, Little Surpur Creek, Johnson Creek, Pecwan Creek, Roach Creek, Mettah Creek, Tully Creek, and Pine Creek.

6.4.1 Adult Data

Adult coho salmon are enumerated at the Iron Gate and Trinity River Hatcheries and the Trinity River weir at Willow Creek, providing information on the relative abundance of fish returning to these locations (Table 1) (the Willow Creek weir estimates total adult hatchery vs. natural coho escapement to the Trinity River above Willow Creek. Based on the identification of hatchery marks, approximately 90% of the adult coho escapement captured at the Trinity River weir at Willow Creek are of hatchery stock.

Table 1. Adult Coho Salmon counted at Trinity River weir at Willow Creek and Iron Gate Hatchery		
Year	Iron Gate Hatchery	Willow Creek Weir
1992	1,697	7,961
1993	675	5,048
1994	172	239
1995	1,501	15,477
1996	3,546	35,391
1997	1,872	1,984
1998	511	10,009
1999	151	4,912
2000	723	10,046
Average	1,205	10,119

Adult salmon counting weirs are currently operated on Bogus Creek and the Shasta River. Previously, weirs were operated on the Scott and Salmon Rivers. In addition, coho salmon are marked at the Willow Creek weir in the Trinity River and recaptured at the Trinity River Hatchery so that a mark and recapture methodology can be used to estimate the population abundance. Between 1981 and 1986 (four sample years), an average of five coho salmon adults (range: 0-12) were counted in Bogus Creek (CDFG unpublished data). Between 1992 and 2000 (nine sample years), an average of four coho adults (range: 0-10) were counted in Bogus Creek (CDFG unpublished data). Typically, coho salmon are first observed at the weir in the first or second week of October.

Since 1991, observations of adult coho salmon at the Shasta River weir have varied from 0 fish in years 1996-1998, to 291 fish in 2001, with an average count of 34 (Table 2). During this period, adult coho salmon have been observed at the Shasta River weir as early as September 25 (1995), and as late as December 14 (2001). In 2001, the weir was pulled due to high flows on December 14 (in the past, the weir has usually been pulled by the end of the second week of November), and it is likely more adult coho salmon entered the Shasta River following that date. Video observations at the weir in 2001 provide some ability to identify coho adults as either of hatchery or wild origin.

Table 2. Coho salmon observed at the Shasta River weir 1991-2001 (CDFG unpublished data).		
Year	Period of observations	Adult Coho Salmon
1991	October 19-November 5	9
1992	October 19-November 2	3
1993	October 2-October 19	4
1994	September 30-October 22	17
1995	September 25-November 7	12
1996	N/A	0
1997	N/A	0
1998	N/A	0
1999	N/A	27
2000	October 24	1
2001	October 2- December 14	291

In contrast to this recent period of observation, adult coho salmon observations during the 1970's at the Shasta River "Rack" averaged 217 fish during years in which the trap had a similar operating season (1970, 1972, 1973 and 1977) (CDFG unpublished data). Despite the relatively greater abundance of adult coho salmon observed at the Shasta River rack in 2001, these data suggest a decline in the status of Shasta River coho salmon during the decade of the 1990s.

Weir counts in the Scott River averaged 25 adult coho (range: 5-37) during the 1982-1986 period (CDFG unpublished data) and four adult coho (range: 0-24) between the years 1991-1999 (CDFG unpublished data). Again, this information should include the qualification that one year accounted for approximately 65 percent of the total number of coho observed during the 1991-1999 period and zero coho were observed in four of the nine years (CDFG unpublished data). Again, coho salmon appear to have declined further in the Scott River basin during the 1990s. Coho salmon were observed in the Scott River during the 1991-1999 period as early as September 21.

The mark/recapture method used to estimate coho abundance in the Trinity River above the Willow Creek weir more accurately reflects population abundance, rather than just a representation of fish counted during a portion of the run. In addition, the majority of the fish trapped are of hatchery-origin, and 100 percent marking of hatchery coho salmon has only recently occurred; therefore, estimates of naturally-produced coho are only available since the 1997 return year (CDFG 2000a). The results of counting from these three years yields an estimated 198, 1001, and 491 naturally-produced adult coho salmon for the 1997-1998, 1998-1999, and 1999-2000 seasons, respectively (CDFG 2000a). Coho salmon were first observed at the Trinity River weir during the week of September 10 during the 1999-2000 trapping season (CDFG 2000a).

Adult coho salmon and coho salmon redds are occasionally observed during chinook salmon spawning and carcass surveys in the Klamath Basin. For example in 2001: six redds with adult coho salmon holding nearby were observed in the main stem of the Klamath River between Iron Gate Dam and Interstate 5 (USFWS unpublished data 2002).

6.4.2 Juvenile Data

The USFWS operates downstream juvenile migrant traps on the main stem Klamath and Trinity rivers. Again, the incomplete trapping record and lack of a quantified emigration estimate provides limited information in terms of abundance or trends, but do indicate the presence of coho salmon at different life stages during certain times of the year. Based on abundance indices developed for juvenile coho salmon, the traps caught averages of 548 smolts at the Big Bar Rotary Screw Trap on the Klamath River, and 2,975 smolts at the Willow Creek Rotary Screw Trap on the Trinity River. The actual numbers of coho salmon captured were much lower (Tables 3 and 4). These low numbers do provide an indication of the depressed status of coho salmon populations in the Klamath River Basin, although some early outmigrants may be missed. Even if these numbers were doubled to account for the time when trapping did not occur, NMFS thinks the low number of smolts is another indication that the abundance of wild coho salmon in the Klamath River is extremely low.

Table 3. Hatchery and wild juvenile (smolts, young-of-year) coho salmon captured at the Big Bar Rotary Screw Trap (USFWS 2001).				
Year	Days Trapped	Wild Smolts	Hatchery Smolts	Young-of-Year
1997	126	17	3	13
1998	97	1	2	12
1999	118	4	6	38
2000	92	8	3	45
2001	54	49	312	155

Trapping at Willow Creek on the Trinity River yielded an average of 2,975 coho salmon smolts (range: 565-5084) for the same period (USFWS 2000). These low numbers do provide an indication of the limited size of coho salmon populations in the Klamath River Basin, although some early outmigrants may be missed. Even if these numbers were doubled to account for time when trapping did not occur, NMFS considers the abundance of these populations to be extremely low.

Table 4 Hatchery and wild juvenile (smolts, young-of-year) coho salmon captured at the Willow Creek Rotary Screw Trap (USFWS 2001).				
Year	Days Trapped	Wild Smolts	Hatchery Smolts	Young-of-Year
1997	144	117	477	50
1998	189	42	351	11
1999	206	48	1,302	240
2000	231	47	97	31
2001	149	8	N/A	15

Between May and November 2001, the USFWS and other cooperators conducted weekly direct-observation counting of fish occurring at various tributary confluences along the main stem Klamath River while the main stem flow was 1,000 cubic feet per second (CFS). Approximately 65 locations were sampled. Coho salmon juveniles were observed in 14 locations where the main stem river temperatures varied from 15.7E to 25.5EC (USFWS unpublished data). Tributary water associated with these sampling locations was sometimes cooler, and ranged from 13.3E to 23.0EC. These data demonstrate that juvenile coho salmon can be found in the main stem Klamath River near some tributary confluences and Klamath tributaries when water temperatures are higher than some believe coho can tolerate and when Iron Gate Dam river flow is 1,000 CFS.

In 1997, the USFWS completed a report that described the life history periodicities for anadromous salmonids, including coho salmon, in the Klamath River Basin (USFWS 1997a). The USFWS determined, both through the operation of juvenile outmigrant traps and review of relevant literature, that coho salmon fry are present in the main stem Klamath River from at least April through late July and coho yearlings are present from mid-March through late July. Hardy and Addley (2001) compiled life stage periodicities for coho salmon in the main stem Klamath that showed coho fry are present in the Iron Gate Dam to Scott River and Salmon River to Trinity River reaches of the main stem Klamath River from February through June and in the Scott River to Salmon River reach of the main stem Klamath River from February through May; coho juveniles were found to be in the entire main stem in all months of the year. Further, USFWS (1997a) concluded that coho salmon juveniles likely rear year-around in the main stem Klamath River between Iron Gate Dam and Seiad Creek. Consistent with the findings of USFWS are the results of CDFG's 2001 study that indicates the majority of juvenile coho salmon emigrated from the Scott and Shasta rivers during the period of April 23 through June 24, 2001 (CDFG, 2002). Both USFWS (1997a) and CDFG (1994b) indicated that coho salmon fry emigrated from some tributaries to the main stem Klamath River soon after emergence. Further evidence of coho salmon fry emigrating from tributaries to the main stem Klamath River has been observed by the Yurok Tribe. In March 2002, Yurok Tribal Fisheries captured coho salmon fry in a downstream migrant trap on McGarvey Creek, close to the confluence of the Klamath River (personal communication H. Voight), and CDFG observed young-of-year coho in the Klamath River estuary (CDFG unpublished data).

Additionally, between March 13 and April 12, 2002, the USFWS rotary trap and fyke net trap on the main stem Klamath River 0.7 miles above Highway I-5 captured 9 and 848 coho fry, respectively. During the same period, their rotary trap and fyke net trap on the main stem Klamath River just below Bogus Creek captured ten and 762 coho fry, respectively. An unpublished 2002 Karuk Tribe Department of Natural Resources states that on April 25, 2002, as flows below Iron Gate Dam declined due to a combination of a receding hydrograph and diminished releases from the project, 18 chinook fry and 101 coho fry were documented in isolated side channels. These fish were rescued by CDFG, FWS, Forest Service, and Karuk Tribal biologists and returned to the main stem.

In summary, information on coho salmon population status or trends in the Klamath River Basin is incomplete, but what information exists suggests that adult abundance is extremely low and has been declining for most of the past two decades. All SONC coho salmon populations within the ESU are depressed relative to their past abundance, based on the limited data available (July 25, 1995, 60 FR 38011; May 6, 1997, 62 FR 24588). The Klamath River population is heavily influenced by hatchery production, and a large component of the population is of hatchery origin, apparently with limited natural production. The apparent declines in production suggest that the natural population may not be self-sustaining (May 6, 1997, 62 FR 24588). These declines in natural production are related, at least in part, to degraded conditions of the essential features of spawning and rearing habitat in many areas of the SONC coho salmon ESU. Poor survival of

coho fry and juveniles in the main stem Klamath River, as indicated by upriver versus downriver trapping results, suggests that degraded main stem rearing habitat is limiting coho production. Existing information also indicates that adult coho salmon are present in the main stem Klamath River from early September through January and juvenile coho salmon are present in the main stem Klamath River throughout the year, including the summer months.

6.5 Status

6.5.1 Listing History

The SONC coho salmon ESU was listed as threatened under the ESA on May 6, 1997 (62 FR 24588). This ESU includes coho salmon populations between Cape Blanco, Oregon, and Punta Gorda, California. An interim rule under section 4(d) of the ESA was published on July 18, 1997 (62 FR 3847) applying the prohibitions contained in section 9(a) of the ESA to the California portion of the ESU, including six general exceptions. Critical habitat was designated for the SONC coho salmon ESU on May 5, 1999 (64 FR 24049). Critical habitat includes all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years). NMFS has identified twelve dams in the range of these ESUs that currently block access to habitats historically occupied by coho salmon. However, NMFS has not proposed these inaccessible areas as critical habitat because areas downstream were believed to be sufficient for the conservation of the ESUs until such time as a Recovery Team is convened to address whether additional habitat is necessary to recover coho salmon.

In April, 2002, the California Department of Fish and Game (CDFG) issued a report titled “Status Review of California Coho salmon North of San Francisco: Report to the California fish and Game Commission. CDFG concluded that the California portion of the SONC coho ESU should be listed as threatened under the California Endangered Species Act, and the Central California Coast ESU of coho salmon, which occurs to the south of the SONC coho, should be listed as endangered. The California Fish and game Commission will accept this report and take action on the recommendations later in 2002.

6.5.2 Factors for Decline

The SONC coho salmon ESU was listed as threatened due to numerous factors including several long-standing, human-induced factors (e.g., habitat degradation, harvest, water diversions, and artificial propagation) that exacerbate the adverse effects of natural environmental variability (e.g., floods, drought, poor ocean conditions). Habitat factors that may contribute to the decline of coho salmon in the SONC ESU include changes in channel morphology, substrate changes, loss of instream roughness and complexity, loss of estuarine habitat, loss of wetlands, loss and/or degradation of riparian areas, declines in water quality, altered stream flows, impediments to fish passage, and elimination of habitat. The major activities identified as responsible for the decline of coho salmon in Oregon and California include logging, road building, grazing, mining,

urbanization, stream channelization, dams, wetland loss, beaver trapping, water withdrawals, and unscreened diversions for irrigation (May 6, 1997; 62 FR 24588).

Coho salmon harvested by California Native American tribes in the northern California portion of the SONC ESU is primarily incidental to larger chinook salmon subsistence fisheries in the Klamath and Trinity Rivers; in neither basin is tribal harvest considered to be a major factor for the decline of coho salmon. Harvest management practiced by the tribes is conservative and has resulted in limited impacts on the coho salmon stocks in the Klamath and Trinity Rivers. (May 6, 1997, 62 FR 24588).

In contrast, over fishing in non-tribal fisheries is believed to have been a significant factor (May 6, 1997; 62 FR 24588). Disease and predation are not believed to be major causes in the species decline; however, they may have substantial impacts in local areas. For example, Higgins et al. (1992) and CDFG (1994a) reported that Sacramento River pikeminnow have been found in the Eel River basin and are considered to be a major threat to native coho salmon. Furthermore, California sea lions and Pacific harbor seals, which occur in most estuaries and rivers where salmonid runs occur on the West Coast, are known predators of salmonids. Harbor seals are present year-round near Cape Mendocino. California sea lions are present near Cape Mendocino in the fall and spring. At the mouth of the Eel River, harbor seals haul-out in large numbers (600-1,050 seals). More than 1,200 harbor seals have been counted in the vicinity of Trinidad Head. Coho salmon may be vulnerable to impacts from pinniped predation. In the final rule listing the SONC coho salmon ESU, NMFS indicated that it was unlikely that pinniped predation was a significant factor in the decline of coho salmon on the west coast, although they may be a threat to existing depressed local populations. NMFS (1997) has recently determined that although pinniped predation did not cause the decline of salmonid populations, in localized areas where they co-occur with salmonids (especially where salmonids concentrate or passage may be constricted), predation may preclude recovery of these populations. Specific areas where predation may preclude recovery cannot be determined without extensive studies; however, the Yurok Tribe (2001) recently published a report indicating that 2-3% of the fall-chinook run was taken by California sea lions in the Klamath River estuary during 1998 and 1999. Coho predation rates may be lower if early winter precipitation causes higher flows during coho immigration periods.

Artificial propagation is also a factor in the decline of coho salmon due to the genetic impacts on indigenous, naturally-reproducing populations, disease transmission, predation of wild fish, depletion of wild stock to enhance brood stock, and replacement rather than supplementation of wild stocks through competition and the continued annual introduction of hatchery fish.

Artificial propagation may also have been a factor in the decline of coho salmon in California although the degree of impact is unknown. The State of California operates two hatcheries in the Klamath Basin, Iron Gate Hatchery on the Klamath and Trinity River Hatchery on the Trinity. Both facilities were constructed to mitigate for lost habitat upstream due to dam construction and are currently operated in a manner minimizing impacts on naturally spawning fish and using very

strict production constraints not to exceed their mitigation goals. Although the biological assessment (Reclamation 2002) indicates that few natural coho salmon remain in the tributaries and that tributary coho populations are dominated by hatchery production, it does not provide any evidence to support this conclusion. According to CDFG, all Trinity River and Iron Gate Hatchery coho production has been marked (maxillary clip) every year since 1996. None of the 57 coho spawner carcasses examined during spawner surveys conducted in the Scott River Basin during December 2000 and 2001 bore any hatchery marks. Preliminary 2001 data from adult coho surveys on the Shasta River using a video camera at the Shasta racks, counts of spawned-out fish that washed back to the racks and carcass surveys in the Shasta River found only six adults out of a total of 291 that were of hatchery origin (i.e., Iron Gate Hatchery). These data suggest that Klamath Basin tributary coho populations are relatively free of hatchery influence and that hatchery coho stray very little during adult spawning runs.

Existing regulatory mechanisms, including land management plans (e.g., National Forest Land Management Plans, State Forest Practice Rules), Clean Water Act section 404 activities, urban growth management, and harvest and hatchery management all contributed to varying degrees to the decline of coho salmon due to lack of protective measures, the inadequacy of existing measures to protect coho salmon and/or its habitat, or the failure to carry out established protective measures. Since the listing of the SONC coho salmon ESU, no new threats have been identified.

In summary, the status of coho salmon populations within this ESU are depressed relative to their past abundance, based on the limited data available. In the 1940s, estimated abundance of coho salmon in this ESU ranged from 50,000 to 125,000 native coho salmon, while in 1996, it was estimated that there were probably less than 6,000 naturally-produced coho salmon throughout the range of the ESU (October 31, 1996, 61 FR 56138). As described in detail below in the Summary of Effects section, NMFS believes that the conservation of populations that comprise each ESU must be ensured, and that Klamath River coho salmon are necessary for the continued survival and recovery of the SONC ESU.

7. ENVIRONMENTAL BASELINE

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species. The environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area (50 CFR § 402.02), and a summary of the conditions faced by of threatened and endangered species in the action area.

The environmental baseline sections of NMFS biological opinions summarize the effects of past and present human and natural phenomena on the current status of threatened and endangered species and their habitat in an action area. The environmental baseline establishes the base condition for natural resources, human usage, and species status in an action area which would be used as a point of comparison for evaluating the effects of an action.

Klamath Project operations and associated activities have occurred for nearly 100 years, which pre-dates the ESA of 1973. The ongoing operations of the Project described in the BA (Reclamation 2002) are a “proposed action;” however, Project construction and operation have continued since the early 1900s, and thus in effect are a part of the environmental baseline. The effects of Project operation are, in part, reflected in the current status of the species being considered in this biological opinion.

Consequently, NMFS will treat all effects of Klamath Project operations that occurred during the life of the Project to this point as part of the environmental baseline for this biological opinion. The “Effects of the Action” section of this biological opinion will consider the expected effects of proposed Project operations, as proposed, into the future.

The factors presenting risks to naturally-reproducing coho salmon populations are numerous and varied. The Klamath River Basin Fisheries Task Force (KRBFTF, created in 1986 by Public Law 99-552) described salmon and steelhead habitat issues in their Long Range Basin Restoration Plan (KRBFTF 1991). Habitat issues were discussed by type of associated human activities: Land management (timber harvesting, mining, and agriculture) and water management (water and power projects, and water diversions) categories. The KRBFTF described the history of these issues, and the activities that have led to present aquatic habitat conditions. The following is a supplemented summary of the KRBFTF’s discussion of these issues.

7.1 Land Management

Industrious land management began in the late 1880s. During the Depression, many new roads were built in the Klamath Basin and new territory was opened up for logging. Many of these roads featured stream crossings that were not designed to allow for upstream and downstream fish passage. After World War II, technological improvements such as power saws, bulldozers, rafts, tugs, trucks and trailers allowed for an increased rate of timber harvest in the Basin. Many of these activities had deleterious effects to the watershed, transferring soils and logging debris into small streams and tributaries, effectively destroying fish habitat.

Roads associated with timber harvesting account for a large portion of the erosion occurring in logged areas. Poor road design, location, construction and maintenance caused erosion of all types: mass soil movement, surface, gullies, and stream bank. Harvesting has expanded from established roads into more inaccessible terrain and areas of greater environmental risk.

The effects of land management activities on streams and fish habitat are well documented (Sullivan et al. 1987; Hartman and Scrivener 1990; Meehan 1991). Forest management activities that influence the quantity, quality, or timing of stream flows affect fish habitat primarily through changes in the normal levels of peak flows or low flows (Sullivan et al. 1987; Chamberlin et al. 1991). Water outflows from hillsides to streams are affected through changes in evapotranspiration, soil water content, and soil structure. In general, timber management activities allow more water to reach the ground, and may alter water infiltration into forest soils

such that less water is absorbed or the soil may become saturated faster thereby increasing surface flow. Road systems, skid trails, and landings where the soils become compacted may also accelerate runoff. Ditches concentrate surface runoff and intercept subsurface flow bringing it to the surface (Chamberlin et al. 1991; Furniss et al. 1991). Significant increases in the magnitude of peak flows or the frequency of channel forming flows can increase channel scouring or accelerate bank erosion.

Increases in sediment contributions to streams are generally attributable to changes in rates of erosion on hillslopes through such processes as increased landslide activity, sheetwash erosion associated with road management activities (construction and maintenance) and yarding operations, and fires (both wildfires and controlled burns). The largest contributions of sediment are typically from road construction activities (Furniss et al. 1991). Significant increases in the sediment supplied to streams can cause channel aggradation, pool filling, additional bank erosion, and losses of channel structures and habitat diversity. Stable large woody debris structures within the stream channel may be lost through direct removal, channel aggradation, debris torrents, or gradual attrition through lack of recruitment. These losses result in a reduction in sediment storage capacity, fewer and shallower scour pools, and a reduction of instream cover for fish (Chamberlin et al. 1991).

Changes in peak flows and sediment yield directly related to the removal of vegetation will typically persist for only a few years and tend to decrease over time as the watershed recovers and new vegetation grows. Changes associated with roads persist indefinitely as roads are maintained or abandoned without treatment. Stream channel responses may take decades or centuries to recover (Chamberlin et al. 1991; Furniss et al. 1991).

Mining activities within the Klamath Basin began prior to 1900. Many of the communities in the Klamath River Basin originated with the gold mining boom in the 1800s. Water was diverted and pumped for use in sluicing and hydraulic mining operations. This resulted in dramatic increases in turbidity levels altering stream morphology. Some believed that the hydraulic mining period resulted in greater impacts to the salmon fishery than the large fish canneries of the era. The negative impacts of stream siltation on fish abundance was observed as early as the 1930s. Several streams impacted by mining operations and containing large volumes of silt seldom had large populations of salmon or trout (Smith 1939).

Since the 1970s, large-scale commercial mining operations have been eliminated due to stricter environmental regulations. However, mining operations continue including suction dredging, placer mining, gravel mining, and lode mining. These mining operations can adversely affect spawning gravels, result in increased poaching activity, decreased survival of fish eggs and juveniles, decrease benthic invertebrate abundance, adversely affect water quality, and impact stream banks and channels.

Crop cultivation and livestock grazing in the upper Klamath Basin began in the mid-1850s. Since then, valleys have been cleared of brush and trees to provide more farm land. By the late

1800s, native perennial grasses were replaced by various species of annual grasses and forbes. This, combined with soil compaction, resulted in higher surface erosion and greater peak water flows in streams. Other annual and perennial crops cultivated included grains, alfalfa hay, potatoes and corn.

As the value of farm lands increased, flood control measures were implemented. During the 1930s, the U.S. Army Corps of Engineers implemented flood control measures in the Scott River valley by removing riparian vegetation and building dikes to constrain the stream channel. As a result, the river channelized, water velocities increased, and the rate of bank erosion accelerated. To minimize damage, the Siskiyou Soil Conservation Service planted willows along the streambank and recommended channel modifications take place that re-shaped the stream channel in a series of gentle curves.

Agricultural practices may adversely impact the aquatic environment. Stream pollution from agriculture runoff is a persistent cause of damage. Animal wastes, fertilizers, pesticides, and herbicides enter the stream as a result of storm runoff and return flows from irrigation. This has resulted in elevated nutrient levels in the Klamath River and some tributaries. Livestock trampling in and near the stream channel can reduce fish egg survival and increase sedimentation due to bank erosion. Agricultural practices that reduce riparian vegetation in turn reduce large woody debris recruitment and simplify the stream channel. Removal of riparian vegetation has also resulted in elevated water temperatures in the Klamath Basin. Temperatures periodically reach levels that are lethal to some fish species. This, combined with elevated nutrient levels, results in stimulation of aquatic plant and algae growth. As water temperatures rise and plants and algae decompose, the level of dissolved oxygen decreases. Dissolved oxygen levels in the Klamath River often fall below the state's water quality objective of 7.0 mg/l.

7.2 Current Federal Land Management

Since 1994, the U.S. Forest Service and Bureau of Land Management have been managing their lands in the Klamath River Basin consistent with the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest Plan; USDA and USDI 1994). This is expected to result in improved freshwater salmon habitat conditions within Federal forest lands through time, as conservative approaches to timber harvest and road-related activities are applied. NMFS previously completed a biological opinion on the continued implementation of the Northwest Forest Plan on Bureau of Land Management and National Forest lands in the basin.

7.3 Water Management

The upper Klamath River Basin is at relatively high elevations and features seasonal accumulations of snow. Also, numerous lakes and wetlands serve to store and gradually release winter precipitation. The Basin is underlain with pervious, water-bearing volcanic rock. Under natural conditions the upper Klamath Basin was the principal source of late summer Klamath River flows, and of flows during years of below-normal precipitation and extended drought (Hecht and Kamman 1996).

Dams impounding water for mining and farming operations were first built in the Klamath Basin during the 1850s. Some of these dams blocked fish passage in a number of tributary streams. The first hydroelectric dams were built in the Shasta River and the upper Klamath River Basin just prior to the turn of the century.

In 1905, Reclamation began developing its irrigation project near Klamath Falls, Oregon. Marshes were drained, dikes and levees were constructed, and the level of Upper Klamath Lake was raised. Irrigation water in the upper Basin was primarily provided by diversion from Upper Klamath Lake and the Lost River system.

Starting around 1912, construction and operation of facilities associated with the Project, and other facilities, have significantly altered the natural hydrographs of the upper and lower Klamath River. These facilities include the A-Canal, Lost River Diversion Dam, Copco Nos. 1 and 2 Dams, J.C. Boyle Hydroelectric Dam, Iron Gate Dam, and Keno Dam. Changes in the flow regime at Keno, Oregon, after the construction of the A-Canal, Link River Dam, and the Lost River Diversion Dam, can be seen in the 1930-to-present flow records. These changes include a reduction of average late spring and summer monthly flows, an increase in average winter flows and alteration of the natural seasonal variation of flows due to reduced natural water storage and to meet peak power and diversion demands (Hecht and Kamman 1996).

The Copco 1 and 2 hydropower facilities were operated in power-peaking mode, and flow releases fluctuated according to anticipated energy demands. Flows could vary by an order of magnitude or more within a 20 minute period, creating a hazard for both fish and fishermen. Fish and their food base were often stranded, resulting in mortality. The detrimental effect to the fishery was pronounced (KRBFTF 1991).

Hecht and Kamman (1996) viewed the hydrologic records for similar water years (pre- and post-Klamath Project) at several locations. The authors concluded that: (1) there was much less variability between mean, minimum, and maximum flows in the Klamath River at Keno prior to construction of the Project; (2) the timing of peak and low flows changed significantly after construction of the Project; and (3) operation increases flows in October and November and decreases flows in the late spring and summer as measured at Keno, Seiad, and Klamath. Their report also noted that water diversions in areas outside the Project boundaries occur as well.

Around the 1920s, water resources in the Shasta and Scott Rivers were developed for irrigated agriculture. Dwinell Dam in the Shasta River Basin was constructed in 1928 to impound irrigation water for the Montague Water Conservation District. The dam effectively blocked access to the southern headwaters. No minimum flow regimes were established in the Shasta River, and the water quality in Lake Shastina reservoir deteriorated as a result of elevated water temperatures, increased algae growth, and decreased dissolved oxygen levels. Nutrient sources in the Basin are from agricultural, urban, and suburban land use. The Dam also prevented spawning gravel recruitment into the downstream River reach.

The Shasta and Scott rivers historically supported strong populations of chinook salmon, coho salmon, and summer-run steelhead (KRBFTF 1991). By the 1960s, CDFG noted that diversion dams denied fish migration passage over numerous diversion dams in the Shasta River Basin. While natural low water conditions can be unfavorable to salmonids, the problem is exacerbated by numerous water diversions. In 1980, the Superior Court of Siskiyou County issued the Scott River Adjudication which appropriated legal water rights in the Scott River Basin. Appropriated water rights in the Shasta River Basin were adjudicated in 1932 by the Superior Court of Siskiyou County. These adjudications have not resulted in minimum instream flows sufficient to conserve salmon in either the Scott or Shasta Rivers and water rights are probably “over allocated” in both basins. Seasonal withdrawals in both basins are not sufficiently managed and sometimes simultaneous water withdrawals result in instream flows dropping 100 cfs or more within a 24-hour period at the start of the irrigation season in late-March and early-April. Because many water divisions in the Scott and Shasta have no gages to control and measure water removals, enforcement of existing water rights is difficult. Gages need to be installed on screened diversions, and unscreened diversions need to be screened, to facilitate State enforcement of over-withdrawal violations.

The Klamath River Compact was approved by Congress in 1957, and provided first water right priorities to irrigated agriculture, including a superior right for adequate water to irrigate 300,000 acres in addition to that land already irrigated ca. 1957 (KRBFTF 1991). Water for fish use (‘recreational use’) was third in priority. Numerous water right conflicts still exist, and the state of Oregon is currently adjudicating all water rights claims in the Oregon portion of the Klamath River Basin.

The Iron Gate Dam was completed by 1962 to re-regulate flow releases from the Copco facilities, but it did not, nor was it intended, to restore the “pre-project” hydrograph. The pre-project hydrograph (at Keno, Oregon) and the post Iron Gate Dam hydrograph (below Iron Gate Dam) can be seen in Figure 1. Minimum stream flows and ramping rate regimes were established in the FERC license covering operation of Iron Gate Dam. As a mitigation measure for the loss of fish habitat between Iron Gate and Copco No. 2 Dams, a fish hatchery was established. Approximately 30 miles of coho salmon habitat are blocked above Iron Gate Dam (CDFG 2002).

In 1964, the Trinity and Lewiston dams were completed in the Trinity River Basin. The initial operation plan diverted at least 80 percent of the Trinity River flow into the Sacramento River

Basin. The remaining Trinity River flow was inadequate to meet the hydrological needs to maintain a healthy river system. Flood induced sediment transport ceased, and riparian vegetation encroached into the channel margin, “fossilizing” the bars and further impeding sediment transport above the North Fork Trinity River. In 1992, minimum flow releases from Lewiston Dam were slightly increased in the Trinity River.

The USFWS and the Hoopa Valley Tribe subsequently published the Trinity River Flow Evaluation Final Report (TRFE) in June 1999. Subsequently, the USFWS, Reclamation, Hoopa Valley Tribe, and Trinity County forwarded the TRFE recommendations as the preferred alternative in a draft EIS addressing main stem Trinity River restoration. NMFS issued a biological opinion on the draft EIS preferred alternative and determined that implementation of the proposed actions was not likely to jeopardize SONC coho salmon. In October 2000, the Trinity River Main stem Fishery Restoration final EIS was published, and an associated Record of Decision selecting the preferred alternative was signed by the Secretary of the Interior on December 19, 2000. On May 3, 2001, the U.S. District Court in the Eastern District of California ordered a preliminary injunction against full implementation of the Trinity Main stem Fishery Restoration program. On May 6, 2002, the court modified this injunction to allow an additional 100 TAF of water to be released to the Trinity River in 2002 to provide the geomorphic benefit of higher flows to aid in restoration of riverine habitat in the Trinity River. Nevertheless, this injunction may remain in place pending the completion of a supplemental Environmental Impact Statement addressing this program.

Indian tribes in the Klamath River Basin also have a profound interest in water management. The Tribes' rights include the right to certain conditions of water quality and flow to support all life stages of fish. (Solicitor's Opinion 1995). The tribes' water rights may have a priority date as early as 1855 and the Yurok Tribe's water right might extend to time immemorial.

7.4 Summary of Water Quality Conditions

In addition to the hydrologic changes resulting from the activities discussed above, human activities have also resulted in degraded water quality in the action area. The Klamath River, from source to mouth, is listed as water quality impaired (by both Oregon and California) under Section 303(d) of the Federal Clean Water Act. In 1992, the State Water Resources Control Board (SWRCB) proposed that the Klamath River be listed for both temperature and nutrients, requiring the development of Total Maximum Daily Load (TMDL) limits and implementation plans. The United States Environmental Protection Agency (USEPA) and the North Coast Regional Water Quality Control Board (NCRWQCB) accepted this action in 1993. The basis for listing the Klamath River as impaired was aquatic habitat degradation due to excessively warm water temperatures and algae blooms associated with high nutrient loads, water impoundments, and agricultural water diversions (USEPA 1993).

In 1997, the NCRWQCB updated the 303(d) list and added dissolved oxygen as an additional limiting factor for aquatic habitat in the Klamath River (NCRWQCB 1998). The impairment

listing regarding dissolved oxygen was prompted by a 1997 USFWS report. The USFWS' concerns included the current status of salmonid populations in the Klamath River, the effects of past and current land use on water quality, annual fish and temperature monitoring data, documented fish kills, and current water quality monitoring data which indicate that acute and chronic values for temperature and dissolved oxygen are observed in the main stem Klamath River, particularly during some summer periods (USFWS 1997b). The Klamath River is scheduled to have TMDLs established for temperature, nutrients, and dissolved oxygen by December 31, 2004.

The fact that the Klamath River is listed for temperature, nutrients and dissolved oxygen is especially important due to the relationship between these three water quality parameters. As described by Campbell (1995), increased water temperatures and lower saturated oxygen concentrations typically occur in the Klamath River during summer months, the same time of year that the growth and respiration cycles of aquatic plants affect dissolved oxygen concentration. These three parameters interact synergistically, and can have a much greater impact on water quality and salmonids than either temperature or dissolved oxygen alone (Campbell 1995).

Nutrient loading leads to increased growth of aquatic plants and algae in the Klamath River channel. The growth of aquatic plants and algae fosters sediment accumulation which decreases the quality of salmonid spawning and rearing habitat and leads to decreased dissolved oxygen concentration and high pH values on a diel cycle (Campbell 1995). The increased growth of aquatic plants and algae can also retard water velocity at low stream flows, contributing to higher stream temperatures in the Klamath River (Trihey and Associates 1996).

Low flow conditions can cause an increase in absolute concentrations of water pollutants. In some geographic areas, high flows may result in lower concentrations of pollutants due to dilution (Campbell 1995). Increasing flows during summer months may improve water quality downstream, but the direct effect of Iron Gate Dam flows is diminished in the lower river during some times of the year. Another positive effect of increased flows on water quality is that of dampening the diurnal fluctuations in temperature and dissolved oxygen. Low stream flows compound high water temperature problems, because a smaller volume of water is more easily heated and cooled, causing larger diurnal changes in the water temperature of the Klamath River (Trihey and Associates 1996; INSE 1999).

The Klamath River has probably always been a relatively warm river (Hecht and Kamman 1996), although there are no historical data to confirm this nor characterize the historic temperature regime. More recently, using a weekly mean temperature of 15°C as a threshold for chronic salmonid stress and a daily mean temperature of 20°C as an acute threshold, the 1966-1982 Klamath River temperatures at Orleans exceeded the acute and chronic thresholds a substantial portion of the time (Bartholow 1995). Campbell (1995) analyzed water quality data for 22 sites in the Klamath basin, applying the 1986 USEPA criteria. The most common water quality criteria exceeded were temperature at all 22 sites, and dissolved oxygen concentration at 11 sites.

7.5 Coho Salmon Harvest

Overfishing in non-tribal fisheries is believed to have been a factor in the decline of coho salmon. This included overfishing that occurred from the time marine survival turned poor for many stocks (ca. 1976) until the mid-1990s when harvest was substantially curtailed (May 6, 1997; 62 FR 24588).

Since 1994, the retention of naturally-produced coho salmon has been prohibited in marine fisheries south of Cape Falcon, Oregon. For the last few years, retention of marked hatchery fish has been allowed off the coast of Oregon. Naturally-produced coho salmon are still impacted, however, as a result of hook-and-release mortality in chinook salmon-directed fisheries and selective coho fisheries off the coasts of Oregon and Washington. Since 1970, the ocean exploitation rate index on Oregon Production Index (OPI) coho salmon stocks (including coho salmon ESUs listed under the ESA) have generally declined from a high of about 80 percent to less than 10 percent in recent years. This has resulted from implementing non-retention fisheries of the Oregon and California coasts. Sport and commercial fishing restrictions ranging from severe curtailment to complete closures in recent years may be providing an increase in adult coho salmon spawners in some streams, but trends cannot be established from the existing data.

Coho salmon from the action area are contacted by ocean fisheries primarily off California. Coded-wire tagged coho salmon released from hatcheries south of Cape Blanco have a southerly recovery pattern, primarily in California (65-92 percent), with some recoveries in Oregon (7-34 percent), and almost none (1 percent) in Washington or British Columbia (percent data represent range of recoveries for five hatcheries by state or province) (Weitkamp et al. 1995). Ocean exploitation rates for SONC coho salmon are based on the exploitation rate on Rogue/Klamath hatchery stocks and have only recently become available. The estimated ocean exploitation rates were 5 percent in 1996 and 1997, 12 percent in 1998, and are projected to be 5 percent in 1999 (PFMC 1997, 1998, 1999). The extent to which coded-wire tagged recovery patterns of these hatchery stocks coincide with the distribution patterns of wild coho salmon is not known.

The annual tribal harvest of coho salmon over the past 5 years has been reported as 670 fish, of which 70 may have been naturally spawning. If the minimum population of naturally spawning SONC coho salmon is about 10,000 fish (Weitkamp et al. 1995), the tribal impact on listed coho salmon has been relatively small, on average less than 100 fish per year during the past 6 years and less than 1 percent of the SONC coho salmon ESU. Estimated harvest rates in the Yurok Tribal fishery on Klamath Basin coho salmon averaged less than 4.3 % between 1992-2000 (pers. comm., D. Hillemeier, April 2002). There are no tribal fisheries on coho salmon populations in the Rogue, Smith, Eel, or Mattole rivers.

7.6 Hatchery Programs

All coho salmon hatchery programs in the California portion of this ESU have a history of transplants from areas outside of the SONC coho salmon ESU. The only out-of-basin transfers of coho salmon to Iron Gate Hatchery occurred in 1966-1968 with Cascade River, OR stock (CDFG 2002). Out-of-basin transfers to Iron Gate Hatchery have not occurred since 1968. Thus,

the frequency and magnitude of out-of-basin plants and transfers in this ESU appears to have been relatively low (Weitkamp et al. 1995).

Although interbasin transfers have ceased, the proportion of hatchery fish in the Klamath Basin remains high. Approximately 90 percent of the Klamath-Trinity basin coho salmon are of hatchery origin (Brown et al. 1994). Recent information from the CDFG suggests that 95% of the coho run in the Trinity River above Willow Creek and about 65% of the coho run in the Klamath River above Weitchipek consists of hatchery origin fish (pers. comm., CDFG April 2002). In the absence of hatchery reforms to address potential genetic issues, the fitness of the wild population may be affected.

Iron Gate hatchery has a production goal of 75,000 coho salmon yearlings per year. However, this is only about 44% of the hatchery's 5-year average annual production between 1987 and 1991. The most recent hatchery release consisted of 46,254 brood-year 1999 yearlings, which were released into the Klamath River at the hatchery (CDFG 2002).

The majority of hatchery fish produced in the Iron Gate hatchery and Trinity River hatchery is chinook salmon. Release of large numbers of hatchery chinook into the Klamath Basin has the potential to increase inter-specific competition for resources which could affect survival of young-of-year coho. CDFG and NMFS have evaluated Iron Gate Hatchery practices and implemented changes to help minimize adverse effects to naturally produced salmon and steelhead. For example, release of the 4.9 million chinook salmon smolts produced in 2002 was modified from a three-day forced release in early June to a phased approach beginning in mid-May. These fish will be volitionally released in four or five separate lots over a month long period. CDFG and NMFS expects this release schedule to minimize competition between hatchery and naturally produced fish, as well as competition between hatchery fish.

7.7 Recent Additions to the Environmental Baseline

ESA section 7 consultation on recent Project operations was addressed in the 2001 Opinion (NMFS 2001a) and subsequent amendments (NMFS 2001b, c), Project operations during this period were added to the previous environmental baseline. In addition to the completed ESA section 7 consultations on April 2001 through February 2002 Project operation, several other consultations addressing other activities within the action area have been completed. These recent consultations are for various projects including bridge replacements, road decommissioning, and fire hazard fuel reduction. Those projects that have been implemented do not result in any material changes to the environmental baseline of the action area.

New information became available shortly after the issuance of the NMFS 2001 Opinion. The public review draft of the Phase II flow study report (Hardy and Addley 2001) provides a refined estimate of unimpaired monthly flows at the Iron Gate Dam site. When compared to the "baseline" flow regime description provided in Reclamation's BA (Reclamation 2002), these estimates provide another description of hydrologic changes that have occurred as water management above Iron Gate Dam has intensified. The latest estimates of unimpaired flow approximate Iron Gate Dam discharge as if there were no diversions from the watershed

upstream of Upper Klamath Lake. These estimates do not depict “pre-settlement” conditions because changes in the watershed (land use, loss of wetlands, etc.) are not considered. However, NMFS believes that these estimates provide the best available estimation of typical flows under which coho salmon in the Klamath River evolved. Therefore, NMFS finds that it is appropriate to use these estimated unimpaired flows as a basis for examining effects of the proposed action in the Effects of the Action section of this biological opinion.

The most recently updated unimpaired estimated monthly 50% exceedence flows included in the draft Phase II report are as follows (Hardy and Addley 2001):

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1589	1897	2282	2738	3072	3913	3841	3568	2689	1854	1425	1503

“Percent exceedence” means that X% of flows for a given period have been greater than the stated flow for that period. For instance, “monthly 70% exceedence flow” means that 70% of the flows recorded for the given month have been greater than the stated flow, and 30% have been below the stated flow.

These estimates are somewhat different than the estimated pre-project monthly mean flows at the Iron Gate Dam site provided in the “Phase I” flow study report (INSE 1999), and were based on hydrologic modeling rather than analyses of flow gage and rainfall data only. NMFS understands that unimpaired flow estimates as defined in the draft Phase II report (Hardy and Addley 2001) and other information that are provided in the report are subject to revision as progress on the report continues.

Operation of the Project during the April 2001 through February 2002 period, consistent with Reclamation’s 2001 Annual Operations Plan and the NMFS 2001 Opinion and amendments (NMFS 2001a, b, c), leads NMFS to generally expect that it will result in survival benefits to Klamath Basin coho salmon that were in the Klamath Basin during this period, relative to previous decades (as described in the 2001 Opinion).

7.8 Integration and Synthesis of the Environmental Baseline

The decline of Pacific salmonids is not the result of a single factor, and to search for the single cause is a misleading oversimplification. Multiple factors have contributed to the decline and multiple factors may still be preventing recovery. The identification of one such factor does not rule out the possibility that others are also acting, perhaps synergistically, to prolong the decline. Furthermore, the causes for the decline appear to include both natural and anthropogenic influences:

- C Dam construction has blocked access to coho salmon habitat in the Eel, Mad, Trinity, Klamath, and Rogue river basins. Within the Klamath River Basin, an estimated 20

percent of historical coho salmon habitat is no longer available (November 25, 1997; 62 FR 62741). This undoubtedly decreased the production capacity of the basin.

- C Water development in the Klamath Basin has altered the hydrology, and the magnitude and timing of water flows has dramatically changed in the Trinity, Klamath, Shasta, and Scott rivers. Agricultural activities associated with Klamath Basin diversions have also contributed to increased nutrient loading. Undoubtedly these activities resulted in adverse effects to coho salmon (and other salmonids), as these fish are adapted to historical flow conditions and high water quality characteristics.
- C Timber harvest activities, associated road construction, grazing, and mining activities have also degraded aquatic habitat conditions. This was acknowledged and addressed in the Northwest Forest Plan (USDA and USDI 1994), which guides Federal land management activities in the Klamath Basin.
- C The entire Klamath River is listed under the Clean Water Act as water quality impaired. The River is not scheduled for TMDL and implementation plans until about 2005.
- C Previous coho salmon capture during non-tribal ocean salmon harvest activities have contributed to the decline of SONC coho salmon. Capture rates for coho salmon have been reduced from a high of 80 percent to 5 percent in recent years in non-tribal chinook salmon fisheries. Only incidental “hook-and-release” mortality continues in ocean salmon fisheries directed at chinook salmon. Poor and uncertain hatchery practices in the past continue to have lingering adverse effects on natural populations in the action area.

Coho salmon stocks in the northern California region of the SONC coho salmon ESU could be at less than six percent of their abundance during the 1940s and have declined at least 70 percent since the 1960s. While harvest, hatchery practices, and poor ocean conditions have contributed to this decline, NMFS thinks the lack of properly functioning habitat is an important factor inhibiting recovery of the ESU.

8. EFFECTS OF THE ACTION

This section of the Biological Opinion, NMFS assesses the direct and indirect effects of the proposed action on SONC coho salmon and critical habitat, and the effects of any interrelated and interdependent activities, added to the environmental baseline. The purpose of this section is to determine if it is reasonable to expect the proposed action to have direct or indirect effects on SONC coho salmon and their critical habitat that reduce appreciably the likelihood of their survival and recovery in the wild (i.e., the “jeopardy” standard identified in 50 CFR § 402.02). Table 5 below represents Iron Gate Dam flows, by time step, (values in CFS) Reclamation predicted to result from the proposed action by water year type (from Table 5.9, Reclamation 2002):

Table 5. Iron Gate Dam flows, by time step, (values in CFS) Reclamation predicted to result from the proposed action by water year type (from Table 5.9, Reclamation 2002)

Time Step	Above Average Water Years	Below Average Water Years	Dry Water Years	Critically Dry Water Years
Oct	1345	1345	879	920
Nov	1337	1324	873	912
Dec	1387	1621	889	929
Jan	1300	1334	888	1011
Feb	1300	1806	747	637
Mar 1-15	1953	2190	849	607
Mar 16-31	2553	1896	993	547
Apr 1-15	1863	1742	969	874
Apr 16-30	2791	1347	922	773
May 1-15	2204	1021	761	633
May 16-31	1466	1043	979	608
Jun 1-15	827	959	741	591
Jun 16-30	934	746	612	619
Jul 1-15	710	736	547	501
Jul 16-31	710	724	542	501
Aug	1039	1000	647	517
Sep	1300	1300	749	722

8.1 Analysis Approach

Main stem conditions directly affect tributary coho populations by providing adequate passage conditions for adults into tributaries, by facilitating movement of juveniles into and between tributaries, by providing rearing habitat for fry and juveniles produced in tributaries but washed down or displaced down stream to the main stem, and by providing adequate conditions for coho smolts as they emigrate from tributaries and migrate to the sea. Although NMFS thinks that recovery of the Klamath Basin coho salmon population depends on improving conditions in Lower Klamath Basin tributaries, efforts to improve habitat conditions in these tributaries will take several years to decades to be realized. As described in the Environmental Baseline section of this biological opinion, habitat in many of the tributaries is degraded from various land-use practices. As a result, some young-of-year coho move into the main stem to avoid these adverse conditions, especially in critically dry and dry water years when instream flows are exceedingly low in some of the tributaries. NMFS must consider whether conditions resulting from the

proposed action are adequate to provide immediate conditions that will allow coho salmon populations to maintain themselves until tributary conditions are adequate to support their recovery. Until Klamath Basin tributary habitat is restored, main stem rearing habitat will be more important than it otherwise might be and NMFS will consider adverse effects to main stem rearing habitat as a risk factor.

The relationship between changes in habitat quantity and quality, and the status and trends of fish and wildlife populations has been the subject of extensive scientific research and publication, and the assumptions underlying our assessment are consistent with this extensive scientific base of knowledge. For detailed discussions of the relationship between habitat variables and the status of salmon populations, readers should refer to the work of FEMAT (USDA Forest Service et al. 1993), Gregory and Bisson (1997), Hicks et al. (1991), Murphy (1995), National Research Council (1996), Nehlsen et al. (1991), Spence et al. (1996), Thomas et al. (1993), The Wilderness Society (1993), and others. However, NMFS is unaware of specific, quantitative estimates of coho salmon habitat requirements in the main stem Klamath River necessary to maintain the species. Therefore, we do not have a specific “target” that must be met to determine the precise point at which jeopardy to the species occurs. As a result, NMFS must develop an alternative analysis approach for evaluating whether the project is likely to jeopardize the continued existence of SONC coho salmon.

For purpose of clarity within this document, the term “reference period” will refer to water years 1990 through water year 1999, used for reference in Reclamation’s Biological Assessment (2002), which appears to be Reclamation’s interpretation of the NRC Committee’s reference to recent historical record. This will distinguish the term “reference period” from the term “historical period of record” which is typically defined as water years 1961 to 1997.

The NRC Committee concluded that there is no convincing scientific justification for deviating from the flows derived from the operational practices in place between 1990 and 2000. They also observed that incremental depletions beyond those that are reflected in the reference period could be accomplished only with increased risk to coho salmon. Therefore, NMFS investigated the difference in operations between those flows that were observed during the reference period and the operations proposed for the ten-year period April 1, 2002, and March 31, 2012, to determine whether any additional incremental depletions in Klamath River Flow might be expected. NMFS then considered the expected effects of the proposed operations on coho salmon and their habitat. Results of both steps were used to determine whether or not the proposed action was likely to jeopardize the survival and recovery of threatened SONC coho salmon.

8.2. Effect of Reclamation’s Proposed Operations on Reference Period Flows

Reclamation proposes to manage the project operations so that they stay within the range of reference period’s minimum and maximum lake level and river flow values, being careful not to let the average creep down. To determine whether Reclamation’s proposal would likely stay within the historic range of minimum and maximum flows at Iron Gate Dam that occurred during the reference period, NMFS calculated the difference between the mean monthly flows for the

reference period and those likely to occur under Reclamation's annual operating plan flows for the months of March through June. NMFS selected the spring months for this analysis because they are the months when coho fry are emerging and redistributing themselves throughout the watershed as they search for suitable rearing habitat, and when juvenile coho are smolting and migrating to sea. Smolts moving downstream must find suitable temperature, flow, and habitat conditions compatible with their physiological transformation during migration (Wedemeyer et al. 1980 cited in NRC 2002a). This is especially applicable to the main stem because all of the smolts from the entire river basin must use the main stem to get to the ocean. The summer months were excluded because of the temperature problems that exist in the main stem in the summer. Fall and winter flow are for the most part dominated by uncontrolled releases so they were not compared in the analysis.

For this comparison, NMFS calculated the mean monthly flows for the reference period. NMFS then calculated mean monthly flows that would occur if Reclamation were to meet the flows identified in its BA (Reclamation 2002, see Table 5 above) over a ten year period in which the distribution of water year types was identical to the distribution of water year types that occurred during the reference period (i.e. six above average years, one below average year, one dry year, and two critically dry years). The results of this comparison demonstrate an average annual reduction in the volume derived from the 10 year mean flows of about 250 TAF (see Table 6).

Table 6. Comparison of monthly mean flows for the 10-year reference period with a hypothetically calculated 10-year period based on Reclamation's proposed management regime, assuming the same frequency of water year types as occurred during the reference period.

Month	10 year mean 1990 - 1999 flows (CFS)	Predicted 10 year mean Flows (CFS)	Difference (CFS)	Volume (Acre Feet)
March	3361	1764	1597	98196
April	2817	1810	1007	59922
May	2311	1415	896	55094
June	1422	802	620	36894
Total Volume				250,106

The reason for this difference is apparent when the steps for developing an annual operations plan are reviewed (see Section 4.1 description of the proposed action). Rather than establishing a conservative planning target (e.g., 10-year mean for the reference period), Reclamation has calculated the mean and minimum flows for each water year type that occurred during the reference period and then established a planning target for each water year type. In above average and below average years, Reclamation will estimate available supply (step 2) and proposed water supply (step 3) based on daily average river flows no lower than the minimums or FERC flows which ever are greater. There is only one dry year in the reference period so there is no difference between the minimum and mean for that year. Therefore, the only water

year type for which Reclamation will use the mean flows for planning purposes are critically dry years. The difference between minimum and mean in critically dry years are small, so there is little benefit in preventing the average from creeping down. If minimums from the reference period are used for planning targets, rather than the mean, then down-stream flows will likely begin oscillating about the minimum and the mean will decline, over time, from where it was during the reference period.

NMFS also used Reclamation's approach of calculating means for each water year type with in the reference period. The mean monthly flows were converted to volumes and these volumes were compared to the volumes in Spring flow expected to result from the proposed action for each water year type (Table 7). This demonstrates a difference of nearly 440,000 acre feet in above average years. NMFS realizes that some portion of this volume is likely attributable to uncontrolled spills that occur in the spring of some wet years. However, at some point in the spring of wet years, operations transition from uncontrolled to controlled operations. At the point the target for managing operations is the minimum flow that occurred during the six wet years in the reference period. Therefore some portion of this volume will likely contribute to a decline in the average flows compared to the reference period. The reason there is no difference between historical and expected flows in below average water years is that there is only one below average water year in the reference period therefore the historical mean and operational target of the minimum are the same value. Likewise, there is only one dry year in the reference period, so the described steps to protect the average from declining in dry years are meaningless. The only differences between the historical and expected flows in dry and critically dry year is the 10,000 acre foot pulse flow proposed for April. NMFS does not think that the 10,000 acre foot pulse flow in April of dry and critically dry years is sufficient to prevent the average from declining.

Finally, the description of the how the size of the water bank will be calculated and how and when it is anticipated to be used leads NMFS to conclude that it will only be available in dry and critically dry water year and that it will be used to ensure that the minimum target flows are met. Therefore, the water bank, as described in the BA, does not appear be a tool for preventing the average flows over the 10 year period of operations covered in the BA from declining relative to the average for flows by water- year type that occurred in the reference period. NMFS thinks that the management strategy described in the BA will result in operations that begin to oscillate about the minimum flows identified for the reference period and the mean flows for each water year type will decline toward the minimums that occurred during the reference period.

Table 7 Volume differences between the Bureau's proposal and mean flows by water year type within the reference period 1990 to 1999.

Water year type	difference between Bureau's proposal and the average during the 10 reference period, 1990 to 1999
Above Average	- 422,000 acre feet
Below average	0
Dry	10,000 acre feet pulse flow
Critically Dry	10,000 acre feet pulse flow

While Reclamation states in its BA that it must be careful not to let the mean creep down, it has developed a planning methodology that will tend to drive the mean down and it included no mechanisms to ensure the mean does not decline. This problem is exacerbated even further by the fact that the flows expected to result from the proposed project are only planning targets and not minimum operating rules. In addition, Reclamation uses a 70 percent exceedence forecast in its project planning. This means that, on average, less water than forecast will be available in 30 percent of the years. If firm commitments for irrigation water deliveries are made on April 1 and then a water year develops that is dryer than forecast the Project will compensate for the difference between its commitments for delivers and expected flows by either reducing flow, reducing lake levels, or operating the water bank. If flows were reduced the mean would decline even further than predicted above.

Based on this analysis, NMFS expects that the proposed action is likely to result in incremental depletions in flows over the course of the period from June 1, 2002 through March 31, 2012, and that will result in increased risk to the continued existence of threatened coho salmon in the Klamath River.

8.3 Expected Effects of the Proposed Operations on Coho Salmon and their Habitat

8.3.1 March through June - Coho fry and juveniles

As described in the “Status of the Species” section of this biological opinion, coho salmon fry and juveniles rear in the main stem Klamath River and some Klamath River tributaries during March through June. Coho fry typically transition to what is considered the “juvenile” stage by about mid June—both stages are referred to collectively as “young-of-the-year.” After emergence from redds, fry swim close to stream banks and seek available cover. As they become older, coho salmon fry move through a succession of preferred habitats: back eddies, log jams, undercut or open bank areas, and higher velocity water in midstream and the stream margins (Lister and Genoe 1970). During this time, feeding coho salmon are highly dependent on visual cues for locating and capturing insect material in suspension or on the water surface (Hoar 1958). Marginal slack water areas are particularly important for these young-of-the-year coho salmon as prey items found in midstream areas are generally unavailable because of weak swimming abilities of this life stage of coho salmon.

In their biological assessment (Reclamation 2002), Reclamation provides an analysis of reductions of available coho fry habitat that would occur under their proposed action versus that which would be available under “baseline hydrology.” This “baseline hydrology” describes available monthly average flows predicted to occur without Project diversions, but with diversion of Klamath Basin water occurring outside the Project, and all Project facilities remaining in place. Reclamation’s analysis represents the effects on coho fry habitat from operation of the Project as opposed to not operating the Project.

As described in Reclamation’s BA, the amount of habitat available to coho fry in the main stem Klamath River is reduced under the proposed action. The BA describes reductions of available habitat as being “major” when there is a reduction of 27% or more from the amount that would be available under “baseline hydrology” flows, and as “minor” when the reduction is 11% or less. Fry habitat in February and March is affected by the proposed action. Major decreases in fry

habitat occur with the proposed action compare to the baseline in “above average,” “below average,” and “dry” water years. Habitat losses range from 27% in March 1-15 of “below average” water years 51% in February of “above average water years. Minor losses occur in “critical dry” water years (11%). There are no instances of increased habitat in February or March. Reclamation sets these reductions in habitat aside by stating that there is no empirical data demonstrating a clear association between a reduction in Klamath River flow and the recruitment and survival of coho salmon in the Klamath River.

While NMFS agrees that Reclamation’s statement is consistent with the NRC report, NMFS is concerned about the magnitude of reduction in habitat associated with planned operations. The 51% reduction in main-stem habitat in February of “above average” years compared to “no project,” is likely inflated by comparing operations that do not account for uncontrolled spills with a baseline that does, but there are regular reductions in habitat of between 20% and 35% in months where uncontrolled spills are not likely to occur. Further these reductions in habitat are relative to baseline conditions that are impaired by other diversions and land use activities. NMFS thinks this emphasizes the importance to expand the science effort in the Klamath River below Iron Gate Dam to determine the importance of main-stem habitat for tributary oriented coho salmon, particularly in the spring months that are important for smolt down-stream migration

Coho fry habitat in the main stem Klamath River becomes increasingly important in the spring as irrigation depletions within tributaries begin to limit available salmon fry habitat in those tributaries, especially in dryer years. Also, coho salmon fry must compete with other species (e.g., chinook salmon) for available habitat in the spring. NMFS believes that this situation would result in decreased availability of resources for fry and juvenile coho in the main stem Klamath River. As a result, the survival of young-of-the-year coho in the main stem is expected to decrease in this period under the proposed action.

Proposed project operations may also affect the survival of young-of-the-year coho salmon through potential stranding of these fish during decreases in Iron Gate Dam flows. For example, Project operations during the week of April 19, 1998, appear to have resulted in stranding of fish. Flows through Iron Gate Dam dropped from 3,300 CFS to 1,800 CFS, resulting in the stranding of coho fry as well as other fish species (USFWS 1998). The extent of mortality was unknown; however, USFWS biologists rescued seven coho salmon fry and 738 chinook salmon fry in three isolated edge water pools. In 1999, a similar change in flows was implemented over a longer time period to decrease potential stranding (L. Dugan, Fishery Biologist, Reclamation, pers. comm., April 9, 1999). Given direct field observation of the stranding of coho at the current ramping rates and mortality this is implicit in these observations, the NRC Committee found that reduction in ramping rates specified in the NMFS April 6, 2001, biological, including mortality of coho fry, due to hourly and daily ramping rates would continue to occur at times under the proposed action.

8.3.2 March through June - Coho Smolts

Out migrating coho salmon smolts in the Klamath Basin must use the main stem river as their corridor to the sea. Juvenile coho salmon from the previous year's cohort transform to the smolt life stage and migrate toward the sea during the spring. The size of the fish, flow conditions, water temperature, dissolved oxygen levels, day length, and the availability of food all tend to affect the time of migration (Shapovalov and Taft 1954). In the Klamath River basin, coho salmon smolt migration generally occurs between March and June with a peak in May (Weitkamp et al. 1995).

Coho salmon begin the smoltification process by less vigorously defending their territories and forming aggregations (Sandercock 1991) while rising to the surface at night and moving downstream (Hoar 1951). Several other physiologic and behavioral changes also accompany smoltification of Pacific salmonids, including negative rheotaxis and decreased swimming ability (McCormick and Saunders 1987). Both of these smolt attributes support the expectation that these fish would outmigrate faster with higher water velocities and experience higher survival because of shorter travel time with associated lower mortality due to migratory delays, predation, and exposure to potentially poor main stem habitat conditions. Although the relationship between flow and smolt survival has not been studied in the Klamath River Basin, this issue has been studied extensively. Several of these studies [Cada et al. (1994), Giorgi (1993), Smith et al., unpublished, and Berggren and Filardo (1993)] in other geographic areas generally supported the premise that increased flow led to increased smolt survival. Scarneccia (1981) also found a highly significant positive relation between total stream flows during the freshwater residency, and the rate of survival to the adult life stage for coho in five Oregon rivers. This expectation, and additional supporting information, is also expressed in Reclamation's biological assessment on pages 89 and 90. Based on available information, smolt survival in the Klamath River (particularly in the Iron Gate Dam to Seiad Valley reach) is expected to be higher with higher flows, and lower with lower flows. NMFS notes that SONC coho smolt outmigration timing coincides with natural high seasonal flows. Under the proposed operations described in the current Reclamation BA, flows could be relatively low, especially in dry and critically dry water years.

Although NMFS expects a concomitant reduction in survival of smolts with reduced flows, the NRC Committee found there was no evidence from existing information to support this conjecture. As stated in the April 30, 2002, letter from the NRC Committee, "if low spring flows were limiting survival in dry years, then year classes from wet years should have been stronger than those from dry years, but no evidence was presented that they were. The committee recognized that while smolts theoretically might benefit from higher spring flows that could reduce passage time and exposure to predators, there was no evidence from existing information to support this conjecture." However, NMFS notes that high flows past Iron Gate Dam occurred during the smolt outmigration period (spring of 1999) of the 2001 adult Klamath River coho year class. Flows at Iron Gate Dam averaged 5784 cfs, 3103 cfs, and 1934 cfs in April, May, and June, respectively. The resulting 2001 adult wild coho returns to the Klamath River appear to be

the highest since the 1970s (see Status of the Species section). This is the type of information that is necessary to establish the correlations between flow and survival that the NRC noted are lacking for the Klamath River, and this data point emphasizes the need to maintain and expand the Klamath Basin monitoring effort to ensure creation of meaningful data series to better assess the impacts of adverse effects to coho habitat in the main stem of the Klamath River.

8.3.3 Summary - March through June

In summary, NMFS thinks that the proposed action during the March through June period will reduce habitat availability and instream flow. These effects to coho habitat could result in increased predation upon coho fry in the main stem, decreased feeding success of coho young-of-the-year, and reduced out migration success of smolts. These adverse impacts could decrease the survivorship of both young-of-the-year and smolts. As a result, the proposed action may cause reduction in the numbers and distribution of coho salmon in the Klamath River over time.

8.3.4 July through September - Young-of-Year Juveniles

Coho fry are territorial. Fry that cannot find or defend a suitable territory are generally displaced downstream. If adjacent downstream habitat is occupied, migrants continue to be displaced downstream (Sandercock 1991). Some of those fish displaced downstream may later move back upstream, or they may migrate along the shoreline and enter other streams (Otto and McInerney 1970). As a result, coho salmon juveniles are distributed along the main stem Klamath River and tributary habitats during the July through September period. Suitable habitat for this life history stage includes adequate space, appropriate stream bed substrate for cover and food base production, cover components, adequate water quality and quantity, and areas of appropriate water velocity. Operation of the Project substantially affects summer flows in the Klamath River below Iron Gate Dam, and its influence extends further downstream during this period, as compared to spring when tributary accretions are greater.

The University of California at Davis constructed a set of reservoir and mathematical models capable of assessing potential water quantity and quality regulation measures for restoration and protection of anadromous fisheries in the Klamath River from Iron Gate Reservoir to Seiad Valley (Deas and Orlob 1999). The project consisted of two general activities: (1) the development and implementation of a water temperature monitoring program; and (2) the implementation and application of mathematical water quality models to Iron Gate Reservoir and the Klamath River from Iron Gate Dam to Seiad Valley.

The relationship between Project operations, water temperature and quality of Iron Gate Dam releases, and conditions that exacerbate fish disease mechanisms is complicated and not fully understood. Using available field data and model application to the historic periods of May through October of 1996 and 1997, general system responses under existing operational conditions were defined. Impacts of seasonal variations in flow, meteorological conditions, and operations were evaluated for both the reservoir and river systems. Definition of existing

conditions provided a starting point for assessment and interpretation of alternatives using 1996 and 1997 conditions. General findings included that during the late spring, summer, and early fall period, increased flows reduced water transit time in the Iron Gate Reservoir to Seiad Valley study reach, moderating the diurnal temperature range and providing modest temperature benefits. However, flow magnitudes can also result in increased reservoir release temperatures (Deas and Orlob 1999).

The Iron Gate Reservoir water temperature model provides confidence in the model forecasting ability, with simulated outfall temperatures falling within about 1°C (1.8°F) of measured values. Reservoir releases to the river are generally cool, and below equilibrium temperature in the spring period. By early summer, the epilimnion of the reservoir has heated to a sufficient depth that release temperatures do not provide appreciable thermal benefits, with the exception of a moderated diurnal cycle (Deas and Orlob 1999).

Further data collection and development of the models continue (M. Deas, pers. comm., March 29, 2001). Future model runs should provide further predictive capability and water management scenario analyses. Also, a U.S. Geological Survey (USGS) suite of Klamath River water flow, temperature and quality models (SIAM) continue to be refined and are expected to provide further insight into the effects of Project water management scenarios in the future (S. Williamson, USGS, pers. comm., February 28, 2001).

Water temperatures and quality contribute to a hostile environment for juvenile salmon during the summer in the main stem Klamath River. Temperatures are typically above the preferred range of coho salmon, and sometimes exceed the lethal limit of 25.5°C reported by Bell (1991), although coho salmon have been observed in the Klamath River at temperatures greater than 25.5°C (USFWS, unpublished data). Although additional flow releases from Iron Gate Dam would not be expected to cool the main stem river to the preferred range, higher flow releases from Iron Gate Dam (e.g., greater than 1,000 CFS), than those that would occur under the proposed action, during the June through September period are not expected to result in elevated water temperatures downstream. In addition, the increased thermal mass of higher Iron Gate Dam releases during this period would result in decreased diurnal temperature fluctuations.

8.3.4.1 Thermal refugia

Thermal refugia are those areas where relatively cooler water is available to fish in sub-optimally warm water bodies. Contributions of cooler water may come from surface flow, such as from tributary confluence sources; or from groundwater, hyporheic flow, or other subsurface sources. Previous studies have indicated the presence of thermal refugia within the main stem Klamath River that are associated with tributary confluence areas (e.g., Belchik 1997; McIntosh and Li 1998). Specifically, McIntosh and Li (1998) found areas in 1997 and 1998 where the differences between tributary and the main stem Klamath River were between 1°C and 2.9°C different. As previously discussed in section 6.4.2, juvenile coho salmon were observed to occupy some of these areas from March through late July 2001 (USFWS unpublished data).

We suspect that main stem river flows influence these thermal refugia in complicated ways, which vary between individual locations. Refugia are also likely affected by meteorological conditions and associated tributary flows and temperature regimes. The suitability of the potential fish habitats that exist is a function of appropriate water depths, velocities, cover, and temperatures. These areas should also either provide adequate food resources or such resources should be available within close proximity.

Based on the limited information available, NMFS finds that the extent to which the net value of these refugia are enhanced or degraded by relatively high versus relatively low Iron Gate Dam summer releases has not been studied and is unknown. Without additional studies, NMFS cannot determine how different Iron Gate Dam flows improve or diminish any survival benefits to coho salmon associated with these areas.

Also, based on the extremely low tributary accretions to the main stem between Iron Gate Dam and Seiad Valley during the summer of 2001, NMFS thinks it is inappropriate to assume that the net “benefits” of associated refugia decrease with Iron Gate Dam flow releases relative to those experienced in dryer years. For example, some aerial imagery suggests that at main stem flows at or above 1,000 CFS thermal areas may be pushed against river banks and into areas that could provide better habitat for rearing coho juveniles. Although thermal areas may remain intact under Reclamation’s proposed summer Iron Gate Dam releases in some areas, NMFS suspects they could also be less beneficial or suitable for juvenile coho because lower Iron Gate Dam flows would be less likely to push the cooler mixing zones near to the river bank. As a result, the cooler mixing zones would extend further into the main channel and into areas away from vegetative and woody cover that is not flooded during lower flows.

8.3.4.2 Fish kills

Although only largely anecdotal information is available, there have been a series of juvenile salmonid “fish kills” in the main-stem Klamath River during the 1990s. NMFS is unaware of any conclusive, scientific connection between Iron Gate Dam flows and fish kills in the main-stem river. However, a fish kill was documented (CDFG 2000) which began in mid- to late June 2000, continued into late July and affected more than 60 miles of river between Coon Creek and Pecwan Creek. Direct mortality was likely caused by a combination of at least two pathogens endemic to the Klamath Basin. High water temperatures in the main stem Klamath River and several tributaries exacerbated the problem. Estimates of the magnitude of the kill as documented by CDFG staff and others ranged from “tens of thousands” to one to three hundred thousand juvenile chinook salmon and steelhead. Hatchery and naturally produced chinook salmon and steelhead were involved and, although no dead coho salmon were observed, they are thought to have been present in the area of the kill. Since 2000, there has been an increased awareness of fish health in the Klamath River, and trained fish kill “response teams” have been established. As a result, trained respondents may gather additional valuable information to further understand these incidents should they occur in the future. In 2001, Iron Gate Dam flows were 1,700 CFS between June 16-30 and flows were 1,000 CFS from July through September.

During this critically dry water year in the Klamath Basin, no similar fish kills were reported on the main stem Klamath River below Iron Gate Dam.

8.3.5 Summary of July - September Effects

In summary, juvenile coho salmon in the Klamath River during this period are expected to encounter marginal to lethal water quality conditions under Reclamation's proposed operation of the Project. Daily average and maximum water temperatures are quite high, and the diurnal variation of temperatures is also stressful to fish. At Reclamation's proposed flows, availability of river edge habitat with appropriate cover elements could become limited, which may reduce the value of thermal refugia. Further investigation of the relationship between flows and structure of thermal refugia is needed.

8.3.6 October through February

8.3.6.1 Adult Migration

Adult coho salmon generally migrate into the Klamath River between October and December, with some migration also observed in September (Weitkamp et al. 1995; Trihey and Associates 1996), and travel upstream and into tributaries to spawn. During this time, the requirements of adult coho salmon include a migratory corridor with suitable water depth and velocities, resting pools, and adequate water quality conditions. Successful immigration also depends on adequate fish passage conditions in the main stem river and access to tributaries. Water depth and velocity of the main stem Klamath River between the mouth and Iron Gate Dam will vary with water flows and are dependent upon meteorological conditions and water management activities. Under the estimated resultant flows included in the Project operations BA (Reclamation 2002), minimum Iron Gate Dam flows during the adult coho salmon in-migration season would likely vary from about 700 to 900 CFS in "critically dry" water years, to about 1,300 CFS during "below average" and "above average" water years, and up to about 1600 in an "average" water year December. The actual Iron Gate Dam flows would vary within any given year depending on meteorological conditions, available water storage capacity in the upper Klamath Basin, and water management activities.

Main stem Klamath River passage conditions for fall adult chinook salmon were examined in 1994 (Vogel and Marine). The authors provided a description of the factors that affect timing of the adult migration, including water temperature regimes, seasonal timing of instream flows, and natural timing of salmon reproductive physiological events (Vogel and Marine 1994). Vogel and Marine (1994) also note that (ca. 1994) specific reservoir releases necessary for adequate main stem flows for salmon had not been defined.

Physical habitat modeling specific to adult coho salmon migration in the Klamath River has not occurred. Model results presented in the draft Phase II report (Hardy and Addley 2001) for chinook salmon spawning habitat indicate that spawning habitat is maximized at approximately

1,300 CFS in the Iron Gate Dam to Shasta River reach (Figure 5). NMFS thinks that adult coho salmon are also able to migrate successfully given this discharge and downstream flow accretions. At potential flows under the proposed action during drier years, when resultant flows may be less than 900 CFS, chinook spawning habitat availability is reduced, and salmon passage conditions may deteriorate. Also, salmon passage conditions from the main stem Klamath River into some tributaries have been a concern under relatively low main stem and tributary flow conditions (Vogel and Marine 1994). Vogel and Marine (1994) determined that “Because water temperatures and instream flows in these tributaries (the Scott and Shasta rivers) were hostile to maturing salmon at that time of year, providing access for salmon into the tributaries in late August through September (by increasing main-stem flows) was moot.” The authors also conclude that “Increasing main-stem flows later in the season (e.g., late September or October) could be a justifiable management action to benefit salmon.” Indeed, tributary water temperatures and flows typically become suitable during the coho spawning migration; therefore, low main stem flows would become the overriding factor preventing tributary access. Accordingly, NMFS thinks that tributary access would likely be adversely affected by the minimum main-stem flows that could occur in drier water years under Reclamation’s proposed action.

The potential adverse effects from main-stem passage conditions and tributary access are spawning migration delays or straying due to natal stream inaccessibility. Because adult salmon do not feed during their freshwater spawning migration, individuals have a finite amount of energy reserves. Therefore, migration to spawning areas, spawning site selection, redd construction, mate selection, defense of redds and mates, and egg laying could be reduced in effectiveness if access to tributaries is blocked or delayed. Consequently, decreased spawning success may result during drier years.

Available information indicates that, in general, water temperatures decrease in the main stem Klamath River in October (Figure 7 and Figure 8). By mid-October, temperatures measured at Iron Gate Dam and at Seiad typically drop below 15EC and are within the range associated with normal coho salmon migration: 7.2E- 15.6EC (Reiser and Bjornn 1979). By mid-December, temperatures typically decrease below 7EC in these locations. Therefore, we do not expect adverse effects due to water temperatures during the coho salmon adult migration period.

8.3.6.2 Spawning and Incubation

Coho salmon spawning and incubation in the Klamath River Basin occurs from November through March with some egg incubation occurring as late as April (Hardy and Addley 2001). Relatively few coho salmon have been observed spawning in the main stem Klamath River (Reclamation 1998, T. Shaw, USFWS, pers. comm. 2002); however, the importance and prevalence of this activity is unknown. Successful spawning is dependent in part on the availability of suitable conditions including substrate, water depth, water velocity, and water quality. Water temperatures in the Klamath River during the November through April period

(Figures 7 and 8) are typically within the acceptable range associated with coho salmon spawning in California: 5.6E- 13.3EC (Briggs 1953).

Coho salmon eggs incubate for about 35 to 50 days in gravel redds following successful spawning, and fry emerge from the gravel about two to three weeks after hatching (Hassler 1987). The survival of salmon eggs and alevins are dependent, in part, on stream and stream bed conditions. For example, high winter flows and resulting gravel movement can result in heavy losses (Sandercock 1991). As previously mentioned, flows released at Iron Gate Dam and downstream flow accretions are variable during this period. Water temperatures measured at Seiad are typically similar to those at Iron Gate Dam during this period (Figures 7 and 8), and fall within the preferred range for incubating salmonids (Bell 1991).

Although the predicted flows are significantly lower than the unimpaired flow estimates in the draft Phase II report (Hardy and Addley 2001), we do not expect adverse effects to coho salmon related to egg and alevin survival if the flows predicted to occur in “above average,” “below average,” and “dry” years are realized. However, we believe that Reclamation’s predicted flows in “critically dry” water years may lead to dewatering of redds and loss of eggs or alevins present within those redds if flows drop from 1101 CFS in January to 637 CFS in February (see Table 5). Additionally, if spawning takes place during significantly higher flows during uncontrolled spill from Iron Gate Dam in “dry” water years, those redds may be subject to dewatering when flows are brought back under control and reduced to the predicted levels.

As stated above, passage conditions from the main stem River into some tributaries have been a concern under relatively low flow conditions (Vogel and Marine 1994), and tributary access would likely be adversely affected by the minimum flows that could occur in drier water years. Salmon that cannot access natal tributaries may stray and spawn in nearby areas. Therefore, NMFS is concerned that main stem flow conditions that will likely result during “dry” and “critically dry” water years under the proposed action could result in an increase in main stem spawning, which would put additional redds at risk of dewatering due to Project operations. In wetter years, NMFS believes that conditions in the main stem eliminate these concerns.

8.3.6.3 Juvenile Rearing

Water temperatures during this period are generally within a tolerable range for juvenile coho salmon (Figures 7 and 8; Bell 1991). In early autumn, as water temperatures decline, juvenile coho salmon move into deeper pools featuring cover, and into flooded side channels and off-channel areas. By using these protected areas, some juvenile coho avoid being displaced downstream during winter freshets (Hartman 1965; Bustard and Narver 1975). Any coho salmon juveniles that survive displacement from tributary habitat due to unfavorable environmental conditions during the summer may find opportunities to migrate back to the tributaries as they become more hospitable (Sandercock 1991). In some situations, this type of migration may result in relatively high survival rates (Tschaaplinski and Hartman 1983). However, juvenile coho may experience difficulty in returning to tributaries under low main stem flow conditions

predicted in drier years, as described above for adult salmon passage into tributaries (Vogel and Marine 1994). These juvenile coho salmon rearing in the main stem under the low flow conditions predicted in drier years are less likely to find preferred habitat types such as flooded side channels featuring adequate cover, such as they would likely find in unregulated tributary streams. Therefore, NMFS expects that juvenile coho salmon may experience some level of adverse effects due to an inability to use optimal habitat types that are both less available in the main stem, and inaccessible to them in some tributaries.

8.3.6.4 Summary of October - February Effects

In summary, NMFS thinks that adverse effects due to the proposed action during the October through February period in drier years may result in a reduction in the numbers, reproduction, and distribution of coho salmon in the Klamath River. Further loss of reproductive success diminishes the population's viability due to further loss of the population's resiliency.

8.4 Interrelated and Interdependent Actions

Interdependent actions are defined as actions having no independent utility apart from the proposed action (50 CFR §402.02). Interrelated actions are defined as actions that are part of a larger action and depend on the larger action for their justification (50 CFR §402.02). These are often thought of as actions that could not take place but for the proposed action.

While we know that water quality in the lower Klamath River adversely affects SONC coho salmon, we do not know to what extent Project-related activities are responsible for these conditions. Identifying and quantifying water quality degradation resulting from interrelated and interdependent actions such as pesticide and fertilizer application should be addressed by further studies.

8.5 Summary of Effects

Operation of the Klamath Project can potentially affect several coho salmon life history stages: migrating adults, spawning adults, incubating eggs, rearing fry and juveniles, and migrating smolts. During the fall and winter in drier years, Project operations can adversely affect main stem Klamath River flows in the Iron Gate Dam to Shasta River reach and, depending on accretions from downstream tributaries, can also affect river flows further down the river. Passage conditions for migrating adult coho salmon in the main stem and access to tributaries may be adversely affected during drier water years under the proposed action. Coho salmon also spawn in the main stem in the Iron Gate Dam to Shasta River reach, and spawning conditions and subsequent success may be adversely affected under certain flow conditions. Thus, in drier years, coho salmon spawning success in the tributaries and main stem river may decrease and, in turn, production of coho salmon may be reduced under these conditions.

During the spring, Project operations substantially affect Klamath River flows in the Iron Gate Dam to Shasta River reach. In dry and critically dry water years, the influence of Iron Gate Dam releases extends farther downstream. The amount of flow in the main stem river affects the amount of suitable habitat available for young-of-the-year coho salmon fry that either originated in the main stem or were displaced from their natal tributaries. The amount of suitable rearing habitat available for salmon and steelhead fry in the main stem may adversely affect their survival if sufficient habitat is not available for all salmonid fry in the main stem (including coho salmon) that must compete for similar appropriate conditions. Tributary access for young-of-the-year coho salmon that attempt to move from the main stem to tributaries may be adversely affected in the Iron Gate Dam to Shasta River reach, and further downstream during drier water years featuring low accretions to the main stem river in the spring. Young-of-the-year coho salmon that cannot find suitable rearing habitat will likely suffer decreased survival.

Also during the spring, yearling juvenile coho salmon are either already present in the main stem or move into the main stem to continue rearing and transforming into the smolt life stage. All juveniles transitioning to the smolt life stage must use the river as a corridor during their migration to the ocean. Although no Klamath River-specific relationships between river flow and smolt survival have been established, available information from other geographic areas indicate that smolt survival increases with river flow. Thus, Project water storage and management activities are expected to affect smolt survival in the Iron Gate Dam to Seiad Valley reach of the Klamath River. The influence of Iron Gate Dam flows extends further down the river during some years, depending on meteorological conditions and tributary inflow. As a result, Iron Gate Dam flows are also expected to influence smolt survival downstream, with the extent of this influence varying with meteorological conditions.

During the summer, Iron Gate Dam flows make up a substantial portion of Klamath River flows as measured at any given point in the river. This is particularly true during drier water years. In 2001 (a “critically dry” water year), summer flows in the Iron Gate Dam to Seiad Valley reach were almost exclusively Iron Gate Dam releases. The relationship between Iron Gate Dam flows and water quality and temperature is poorly understood, but evolving models and additional analyses continue to shed light on this relationship. The USGS SIAM model includes a water temperature model for the Klamath River, and some results have shown that under relatively high Iron Gate Dam flow, the daily mean summer temperatures immediately below Iron Gate Dam are expected to increase slightly relative to scenarios of lower Iron Gate Dam releases. However, Klamath River mean daily water temperatures as predicted at Seiad Valley are expected to decrease slightly under relatively high Iron Gate Dam flows and result in improved water temperatures in terms of total number of seasonal “chronic and acute” degree days (Campbell et al. 2001). These results may be due to the effect of mass heating in Iron Gate Reservoir has less importance than riverine heat exchange processes at this location which is approximately 80 km downstream. The heating of Iron Gate Dam releases downstream to Seiad Valley has been previously modeled (Deas and Orlob 1999), and these results are generally consistent with SIAM modeling results. The model developed at U.C. Davis (Deas and Orlob 1999) also indicates that

in general, the range of diurnal water temperature fluctuations in the Klamath River are expected to be smaller under relatively high Iron Gate Dam flows.

As previously discussed, tributary confluence water mixing areas and other potential thermal refugia have been identified in the Klamath River. While NMFS is aware that effects to these refugia, in terms of juvenile salmonid survival, are unstudied and unknown, the Interim NRC Report notes that “[a]ddition of substantial amounts of warm water [from Iron Gate Dam] could be detrimental to coho salmon by reducing the size of these thermal refuges.” In 2001, little to no accretions to Klamath River flows occurred between Iron Gate Dam and Seiad Valley; therefore, any flow measured in this reach of the river essentially came from Iron Gate Dam releases. So, while NMFS is also concerned about the temperature of Iron Gate Dam releases during the summer, this represents the only water in the river in this location during “critically dry” water years (as defined by Reclamation).

The expected survival and reproduction of coho salmon in the freshwater environment can be conceptually thought of as a product of the component survival values of these life history stages. Any improvement in the survival of any freshwater life stage of coho salmon should be manifest in the size of the initial marine population and, depending upon ocean conditions, in the adult return population.

A major difficulty in determining the requirements for survival and recovery of coho salmon ESUs is the substantial degree of uncertainty regarding their status, population trends, and genetic integrity. The SONC coho salmon comprises multiple populations, each of which may be uniquely adapted to local sub-basin or watershed environments. Preservation of the remaining genetic diversity embodied in these undefined populations may be essential for the survival and recovery of the ESU as a whole. All SONC coho salmon populations within this ESU are depressed relative to their past abundance, based on the limited data available. The main populations in this ESU (Rogue River, Klamath River, and Trinity River) are heavily influenced by hatcheries, apparently with little natural production. The apparent declines in production suggest that the natural populations are not self-sustaining. These declines in natural production are suspected to be related, at least in part, to degraded conditions of the essential features of their habitats in many areas of the SONC coho salmon ESU. The status of coho salmon populations within this ESU are depressed relative to their past abundance, based on the limited data available. For these reasons, NMFS considers Klamath River coho salmon to be necessary for the continued survival and recovery of the SONC coho ESU. The Klamath River population is a major component of the SONC coho ESU both in terms of its potential numbers of fish, and because of the existence of “remnant” naturally produced inland-migrating (versus the more prevalent short-migration coastal populations) component of the run.

Efforts to restore important coho habitat in tributaries will take several years to decades to be realized. Operation of the Klamath Project according to the proposed action described in Reclamation’s biological assessment would generally result in degraded habitat conditions, even when compared to the last 40 years when the FERC minimum flow schedule generally guided

Project operations with regard to Klamath River flows or when compared to historic range of minimum and maximum flows at Iron Gate Dam that occurred during the past 10 years. Based on available information and in combination with the existing baseline, NMFS has determined that Project operation under the proposed action included in the Project BA (Reclamation 2002) is expected to increase the risk of extinction to Klamath Basin coho salmon by allowing average flows to decline below those which occurred in the reference period and due to adverse affects to coho habitat in the main-stem of the Klamath River and the individuals occupying that habitat.

8.6 SONC Coho Salmon Critical Habitat

Designated critical habitat for SONC coho salmon occurs downstream of Iron Gate Dam (May 5, 1999; 64 FR 24049). In designating critical habitat, NMFS focuses on the known physical and biological features (primary constituent elements) within the designated area that are essential to the conservation of the species. These essential features may include, but are not limited to, spawning sites, food resources, water quality and quantity, and riparian vegetation. Within the essential habitat types (spawning, rearing, juvenile migration corridors), essential features of coho salmon critical habitat include adequate: (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions (May 5, 1999; 64 FR 24049).

As previously discussed, the ongoing operation of the Project is expected to result in changes to the hydrograph in the Klamath River below Iron Gate Dam relative to no project conditions and unimpaired conditions, and affects available fish habitat, water temperatures, and dissolved oxygen levels during the summer period. Operation of the Project during the 1962 to 1997 period similarly affected fish habitat. The extent to which Project operation may appreciably diminish the value of critical habitat for both the survival and recovery of SONC coho salmon currently depends, in part, on Iron Gate Dam flow schedules in any given year. Except for critically dry water years, the proposed Project operation includes managing water to meet the lowest average monthly or biweekly Iron Gate Dam flows on record for the 1990 to 1999 period (by water year type). In addition, because the proposed minimum flows are monthly or biweekly averages, instantaneous flows could be lower. As discussed above, main-stem habitat required by coho salmon life stages could be adversely affected, especially during drier years. The level of potential adverse effects of Project operation on main stem Klamath River habitat is greater under the proposed Project operation than during the 1961 through 1997 historical period of record and the 1990 to 2000 reference period. During the historical period of record, the status of Klamath River coho salmon declined and ultimately contributed to their listing under the ESA, in part, probably due to main stem Klamath River habitat conditions. NMFS expects that the proposed action is likely to result in incremental depletions in flows over the course of the period April 1, 2002 to March 31, 2012, and that will result in increased risk to the continued existence of threatened coho salmon in the Klamath River. Therefore, NMFS has determined that critical habitat within the main stem of the Klamath River is likely to be adversely modified.

9. CUMULATIVE EFFECTS

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." For the purposes of this analysis, the action area encompasses the Project and downstream aquatic habitat below Iron Gate Dam in the Klamath River.

The dominant land-use activities on non-federal lands adjacent to the action area are forestry and agriculture. Significant improvements in SONC coho salmon production within non-Federal lands are unlikely without changes in forestry, agriculture, and other practices that occur in riparian areas.

Now that SONC coho salmon are listed as threatened, NMFS assumes that non-Federal land owners will recognize the need to take steps to curtail or avoid land management practices that may result in potential unauthorized take of listed coho salmon. For actions on non-Federal lands, which the land owner or administering non-Federal agency believes are likely to result in adverse effects to SONC coho salmon or their habitat, the land owner or agency should contact NMFS regarding the appropriate section 10 incidental take permits, which require submission of Habitat Conservation Plans. If an incidental take permit is requested, NMFS would seek appropriate measures to avoid or minimize adverse effects and taking of listed and proposed anadromous fish.

In recent months, non-Federal actions that can affect salmon and steelhead habitat have received an increasing amount of attention. For example, it is known that water diversion activities in the upper Klamath Basin upstream of Upper Klamath Lake affect the amount and timing of water accretions to Upper Klamath Lake, and in turn the amount of water available for management by Reclamation's Klamath Project. Also, water diversion activities in sub-basins downstream of Iron Gate Dam (e.g., the Shasta River, Scott River, and Indian Creek) affect the timing and amount of water accretions to the main stem Klamath River, which affects the amount of tributary and main stem habitat, and associated water quality, available to Klamath Basin coho salmon.

On July 28, 2000, the California Fish and Game Commission (Commission) received a petition to list coho salmon north of San Francisco as an endangered species under the California Endangered Species Act (CESA). Subsequently, the California Department of Fish and Game (CDFG) determined that the petition included sufficient information to indicate that listing coho salmon may be warranted. On April 5, 2001, the Commission accepted the petition and as a result coho salmon occurring in California north of San Francisco are considered candidates for listing under CESA. California Fish and Game Code sections 2080 and 2085 prohibit the take of candidate species unless such take is authorized by CDFG. The Commission will vote on whether to list coho after public meetings to be held in April or May 2002.

At their April 5, 2001, meeting, the Commission also issued a Special Order Relating to Incidental Take of Coho Salmon During the Candidacy Period, as allowed under Fish and Game Code section 2084 (CCR, Title 14, Section 749.1). Under the Order, certain activities that are consistent with some specific measures to protect coho salmon, but may result in the take of coho salmon, are allowed to continue. Should coho salmon north of San Francisco be listed under CESA, incidental take of this these fish would require authorization.

Although the CESA listing candidacy for coho salmon north of San Francisco and the associated take prohibitions and limitations will theoretically provide an added level of protection of these fish in the Klamath River Basin, it is difficult to quantify the associated survival benefit. Also, any additional survival benefits provided these fish may be lost following the candidacy period if the Commission does not list coho salmon north of San Francisco under CESA. In an attempt to pro-actively pursue improvements in coho salmon habitat in tributaries to the Klamath River prior to the listing decision, the CDFG has recently intensified their efforts. For example, CDFG has proposed the Scott River Watershed Stewardship Program that would focus on changes to water management in this sub-basin.

Until improvements in non-Federal land management practices are actually implemented, NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Given the degraded environmental baseline for listed and proposed Pacific salmonids, actions that do not lead to improvement in habitat conditions over time could contribute to species extinctions.

Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. In addition, non-Federal actions that require authorization under section 10 of the ESA will be considered in the environmental baseline for future section 7 consultations.

10. CONCLUSION

After reviewing the current status of SONC coho salmon, the environmental baseline for the action area, the effects of the proposed action (i.e., operation of the Klamath Project through March 2012), and cumulative effects, it is NMFS' biological opinion that the action, as proposed, is likely to jeopardize the continued existence of SONC coho salmon. Based on the NRC report (2002a), NMFS finds that the action, as proposed, is likely to adversely modify critical habitat for the SONC coho salmon.

11. REASONABLE AND PRUDENT ALTERNATIVES

11.0 Reasonable and Prudent Alternatives

Regulations (50 CFR §402.02) implementing section 7 of the ESA define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) in NMFS' opinion, would avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat. NMFS and Reclamation have identified one reasonable and prudent alternative which, NMFS believes, meets the criteria outlined above.

This RPA consists of the following elements:

- 1) specific water management measures over the next 10 years (2002 - 2012);
- 2) a water bank and water supply enhancement program to provide flows to the Klamath River below Iron Gate Dam to improve coho salmon habitat;
- 3) an agreed upon long-term flow target to be achieved by 2010 (see Table 8);
- 4) an inter-governmental task force to develop, procure, and manage water resources in the Klamath River Basin; and
- 5) an inter-governmental science panel to develop and implement a research program to identify and fill gaps in existing knowledge regarding coho salmon and their habitat requirements during various life history stages and water year types.

NMFS thinks that this approach provides a reasonable balance between the findings of the NRC Committee on Threatened and Endangered Fishes in the Klamath River Basin (2002a, 2002c) and the findings of Hardy and Addley (2001). NRC concluded that given the absolute scarcity of coho, it seemed unlikely to the committee that the coho is saturating its available main-stem habitat, even without augmentation of main-stem flows. The Committee did not find convincing evidence that the main stem is a significant rearing area for coho, even though it seems likely that the main stem is an important rearing area for other anadromous species. Neither did the committee find evidence from existing information to support the conjecture that smolts might benefit from higher spring flows that could reduce passage time and exposure to predators. Hardy and Addley (2001) present a detailed analysis of the effects of the Klamath Project on main-stem habitat for a suite of species including the anadromous fish. Inherent in Hardy and Addley's claim that their flow recommendations are necessary to aid restoration efforts and the maintenance of the aquatic resources within the main stem of the Klamath River is an assumption that aquatic species will react to changes in the hydraulic environment (Hardy and

Addley 2001). The NRC committee concluded that a convincing case had not been made that marginal increases in habitat would lead to marginal increases in growth or survival, especially in view of this species' scarcity, which suggests failure of the species to saturate its main-stem habitat under current conditions (NRC 2002c). Hardy and Addley (2001) point out that their assumption that aquatic resources will react to changes in the hydraulic environment is rooted in ecological principals and has been demonstrated to be valid in applied research (several examples are referenced). Although there is no direct evidence that Klamath River coho will benefit from higher spring flows, NMFS thinks that at least under some conditions (e.g., critically dry years) the assumption that increases in coho main-stem habitat may be beneficial to at least some coho life history stages (e.g., smolts) may be valid. Coho smolts must compete with chinook and steelhead smolts for resting areas and spaces to avoid predators during their migration to sea. Increase flows would provide more area for this complex of species and reduce interspecific competition for space. In addition, NMFS notes that benefits derived from quicker passage to the ocean are not necessarily density dependent, so increases in survival derived from quicker passage of smolts to the ocean should be derived regardless of whether the habitat is limiting or not. While the NRC Committee concluded that there currently is little scientific support for minimum flows as a means of enhancing the maintenance and recovery of the coho population, it pointed out in its April 30, 2002 letter (NRC 2002c) that it did not conclude that NMFS must be wrong in its recommendations on main-stem flows in its April 6, 2001 RPA. As stated in the interim report, the NRC committee, as required by its task, considered the scientific basis for the NMFS recommendations and, in doing so, found the evidence and arguments for main-stem flows to be weak, but this finding does not necessarily mean that the NMFS recommendations are incorrect.

NMFS thinks a prudent approach to consideration of the best available science, in light of the current status of SONC coho salmon would give deference to these potential benefits by developing a science based program to test the assumptions underlying Hardy and Addley's (2001) work and developing tools (e.g., water bank and conservation program) to provide the flexibility to increase flows over time. While NMFS agrees with the NRC committee's conclusion that there is no direct evidence from the Klamath River that coho will benefit from increased flow, NMFS' professional judgement based on studies for the Columbia River (Cada et. al., 1994) and the Sacramento and San Joaquin Rivers (DOI 1999) is that augmentation of spring flows likely would benefit coho in the Klamath River. Therefore, this RPA includes a science program to refine flow recommendations, a water bank to improve spring flows for smolts, and recommended flow schedule to be implemented by 2010, unless modified by new scientific information.

Further, NMFS thinks that this RPA is consistent with the findings of the NRC interim report because it provides for use of the water bank to buffer against allowing the average flows to decline below those of the reference period. In Reclamation's proposed operations, the water bank would have operated to meet the flow described in Table 5.9 of the BA. Under this RPA, the water bank will be used to exceed the flows in Table 5.9 of the BA and contribute to improved spring time and, if appropriate, summer habitat conditions. This provides the

precautionary mechanism to improve smolt out migration habitat and improve smolt survival during smolt migration to the ocean. The size of the water bank will increase from 30 TAF to 100 TAF through four incremental steps. In addition, Reclamation has committed to provide its share of the flows that are recommended by NMFS to optimize habitat for coho smolts in the main stem in the Shasta to Scott River reach of the Klamath River, and to a process that will include the States of California and Oregon in providing the remainder of those flows. Finally, Reclamation has committed to convening a science panel to oversee design and implementation of experiments to improve the quality of science regarding the relationship between flows and coho survival and recovery in the Klamath River. These experiments will be conducted to refine the long-term flow targets (Table 9) established by NMFS based on the habitat suitability curves for coho fry contained in Hardy and Addley (2001). NMFS recognizes that Hardy and Addley (2001) habitat suitability criteria, upon which it relied to deriving long-term flow target found in Table 9 may change as the report progresses through public comment and peer review to a final report, and that even then new information from the science program embodied in this RPA could refine that information further. Therefore, NMFS views the flows recommended in Table 9 as planning targets that could be adjusted as the body of scientific information increases. NMFS thinks this a risk averse approach that provides incremental improvements in habitat conditions while the science is developed to allow refinement of our understanding of the role of main-stem habitat in coho survival and recovery and it provides a mechanism to increase flows to the extent the need is supported by the science that is developed.

11.1 Overview of Development of RPA

On April 23, 2002 Department of Interior and Reclamation leaders met with NMFS to discuss NMFS jeopardy finding and NMFS view that consideration should be given to protecting main-stem Klamath River habitat. NMFS presented a proposal that recognized both the NRC view that scientific support for increased flows was weak and a conservative view that main-stem habitat may be limiting, particularly for the smolt population which is dependent on suitable conditions in the main stem to complete its migration to the ocean. NMFS proposed flows (RPA flows) which were calculated based on use of the habitat suitability curves in the Hardy and Addley draft phase II report (2001) (see section 11.4.2 and Table 9). Interior indicated that these RPA flows were not viable in its view, because they would result in deficiencies in deliveries to project contractors of such a magnitude and frequency that the RPA flows could not be considered reasonably to allow Reclamation to operate in a manner consistent with the intended purpose of the project.

One reason the deficiencies are large is that the calculation of the RPA flows relied on unimpaired flow estimates from Hardy and Addley's draft phase II report which in Reclamation's view holds them accountable for depletions in flows that are attributable to water development that had been permitted or allowed by the States of California and Oregon subsequent to the Klamath Projects authorization, acquisition of water rights, and initiation of operations. NMFS reiterated its view that the appropriate (i.e. risk averse from an ESA perspective) consideration of the Hardy and Addley draft phase II reports was to give it a level of consideration commensurate

with the NRC findings (NMFS thinks that the NRC committee confirmed this view with its recognition that its finding does not necessarily mean that the NMFS recommendations are incorrect). In NMFS view, Reclamation should implement a strong science based program to either verify or reject the underlying assumptions in the Hardy and Addley draft phase II report, and implement a water management program that has sufficient flexibility to ensure that there are no incremental depletions beyond those that are reflected in the reference period (as suggested by NRC committee) and to provide increased flows if the science develops to support increased flows. NMFS and Reclamation agreed to continue discussions to develop an RPA, and on April 29 and 30, 2002, NMFS and Reclamation met to further develop an RPA.

In that meeting, Reclamation acknowledged that to the extent that coho are harmed by reductions in flows in the Klamath River below Iron Gate Dam, it is responsible for a share of the remedy proportional to Project impacts and it expects to be a key player in facilitating complete achievement of the remedy. Reclamation proposed using a calculation of percent irrigable acres in the upper Klamath Basin that are irrigated by project contractors to determine its share of the remedy. As a result, Reclamation would be responsible for 57% of the releases at Link River Dam needed to result in the Iron Gate Dam flows described in NMFS' RPA flows or the flows that are identified in Table 5.9 of the BA, whichever are greater.

NMFS pointed out that establishing flows of only 57% of the RPA flows may not avoid jeopardy over the 10-year period of proposed Project operations, and therefore would not constitute a viable RPA. This problem was resolved when Reclamation agreed that it would use its authorities to establish a multi-agency task force/working group, comprising Federal, State, Tribal and, where possible, local agencies and interests, to develop the other 43% of the flows identified in the RPA. The water to achieve these additional flows would come from areas outside the boundaries of the Klamath Project. This approach anticipates that the States of California and Oregon will participate in the process, step up enforcement of existing water rights or water rights laws, and develop programs to improve flows in the tributaries to the Klamath above and below the Project.

At the meeting, NMFS and Reclamation explored Reclamation's current capability to meet their 57% share of the RPA flows and determined that Reclamation needed time to develop resources to meet that obligation. Reclamation stated that development of the water bank was its preferred approach to making progress toward 57%. Reclamation agreed to a phased approach and schedule that would build the water bank to 100 thousand acre feet (TAF) to be dedicated to making progress toward its 57% share in four increasing annual increments. By water year 2006, Reclamation will have developed a water bank of 100 TAF to augment Iron Gate Dam flows and other measures and actions to make up any difference between 100 TAF and 57% in the years where more water would be required.

Also beginning in water year 2002, Reclamation will initiate a State/Federal process to improve conditions in the tributaries, including increase flows that would contribute to meeting the RPA flow (i.e., the other 43%). Initially this process would focus on refinement of the science to

determine what the best main-stem flow should be for the purpose of providing sufficient main-stem habitat conditions for coho salmon, additional non-flow measures to improve the baseline for coho habitat, and then develop and implement programs to increase instream flow in the tributaries that would also augment instream flows in the main stem. By water year 2009, NMFS would expect to see progress by this task force, and by water year 2010, NMFS would expect the RPA flows to be realized, unless those flows had been modified by results of scientific investigations conducted throughout the course of the decade covered by the proposed action.

Reclamation also agreed to convene a panel of experts to assist in designing additional studies to improve our understanding of the relationship between flows and fish survival. Reclamation also agreed to initiate experiments in the summer of 2002, to begin testing the effect of various flows on thermal refugia in the main-stem Klamath River.

Given that coho are primarily tributary spawners, that main-stem spawning and rearing habitat is likely not limiting at the current population size, and recognizing the importance of the main-stem as a migratory corridor for adult and down-stream migrating smolts, NMFS thinks that the approach contained in this RPA sufficiently addresses the adverse effects of the Klamath Project to SONC coho salmon and its critical habitat by incrementally improving smolt migration habitat over conditions that would be achieved in the BA and those suggested in the NRC interim report. It provides a conservative approach to increase main-stem habitat incrementally while the studies are conducted to better refine the understanding of the relationship between flows and population response. In the event the studies determine more flows are needed, Reclamation will be prepared to provide them either as their contribution via project resources or through facilitation of an inter-governmental process. In the contrary, the flow targets may be reduced to levels supported by the science.

The following table (Table 8) summarizes the major components of the RPA:

Table 8. Proposed RPA Elements by Water Year										
Phase	Phase I				Phase II				Phase III	
water year	02	03	04	05	06	07	08	09	10	11
water bank	30 taf	50 taf	75 taf	100 taf	100 taf	100 taf	100 taf	100 taf	100 taf	100 taf
57 % ¹					57%	57%	57%	57%	57%	57%
task force	develop MOU	acquire resources and establish taskforce		plan development, continued studies, non-flow measures		non-flow measures and incremental contributions to making up remaining 43% or RPA flows			Long-term RPA flows achieved	
initial studies	resolve summer flow v. temperature issue									
	smolt survival v. flows									
	monitoring distribution and abundance of adults and juveniles: determine importance of main stem for coho juvenile rearing habitat									

1 - in a few instances the flow resulting from 57% of the RPA flows is less than the flows proposed by Reclamation in its BA. In those instances, Reclamation will meet the flow proposed in the BA.

The following sections provide an overview of the RPA's program elements within each of its three phases.

11.2 Phase I - 2002 - 2005

During the first three years of implementing this BO, NMFS expects Reclamation to 1) lay the ground work for gaining cooperation of Oregon, California, and Klamath River Tribes; 2) establish scientific panel to guide investigations to address issues identified in the interim and final NRC committee reports on threatened and endangered fishes in the Klamath River Basin; 3) and begin to develop water supplies that are devoted to increasing flows in the Klamath River below Iron Gate Dam; and 4) operate to the minimum flows identified in Table 5.9 of Reclamation's BA (Reclamation 2002), as modified on an annual basis by agreed upon use of the water bank for improved spring flows and/or summer flows manipulated to accommodate study of the effect of higher summer flows on the integrity and structure of thermal refugia.

11.2.1 Hydrology

11.2.1.1 Water Year Types

NMFS thinks there is ecological value in natural variability; however, due to operational constraints, truly natural variability within and between years is not possible. Therefore, NMFS proposed adopting water year types defined in the draft Phase II flow study report (Hardy and Addley 2001) as the best existing division and description of various water year type classifications in this RPA. The manner in which Reclamation's four water year types are partitioned results in above average and below average water year types, and corresponding flow regimes, spanning 80% of all possible water supply forecasts. Hardy and Addley's partitioning of water year types spans four possible flow regimes over this same set of water availability forecasts. Natural variability in flow, both within and between years, plays an important role in maintaining the various ecological functions of rivers (Poff, et al 1997). Therefore, NMFS thinks that the four water year types proposed by Reclamation do not adequately partition and reflect the a range of flow variation that NMFS thinks is necessary to accommodate the needs of coho salmon. Also, the KPSIM water quantity model used by Reclamation for water management planning has recently been revised to handle five water year types.

The boundaries between water year types are designated by Upper Klamath Lake, April through September inflow volume exceedence values (i.e., the percentage of years in the 1961 through 1999 period of record that an individual annual inflow volume is exceeded): 88%, 60%, 40%, and 12% (See Table 19 of Hardy and Addley 2001).

In producing flow recommendations for each of these five water year types, NMFS used the unimpaired flow estimates provided in the Hardy Phase II report to help calculate appropriate instream flows below Iron Gate Dam. These unimpaired flow estimates are given in increments of 10% exceedence, while water year types are designated over ranges of Upper Klamath Lake inflow volume exceedence values. For example, an "average" water year is designated as having an Upper Klamath Lake inflow exceedence range of 40% to 60%, and the Hardy Phase II unimpaired values are available for specific 10% exceedences of 40%, 50%, and 60%. Therefore, NMFS had to select which specific unimpaired flow exceedence value from the Hardy Phase II report best represented the range of water available in a given water year type. NMFS selected the monthly 10% exceedence flows as typical unimpaired monthly flows during "wet" water years. Monthly 30% exceedence flows were selected as typical unimpaired monthly flows during "above average" water years. Monthly 50% exceedence flows were selected to typify unimpaired monthly flows during "average" water years. Monthly 70% exceedence flows were selected as typical unimpaired monthly flows during "below average" water years. Monthly 90% exceedence flows were selected as typical unimpaired monthly flows during "dry" water years. NMFS recognizes that additional, intensive hydrologic analysis could refine approximations of typical (i.e., average or median) monthly unimpaired flows during alternative water year types. However, NMFS believes the estimates as presented are reasonable approximations of prevailing unimpaired spring flows during the various water year types.

11.2.1.2 Flow Management

During water year 2002, Reclamation will provide flows for a below average water year plus a 30 TAF water bank (used in May 2002). For 2003 through 2005, Reclamation will meet or exceed the Iron Gate Dam flows described in Table 5.9 of the final biological assessment as modified by conversion to five water types plus the additional volume to be provided by the water bank. Specifically, the minimum volume of additional water during water years 2003 through 2005 will be 50 TAF, 75 TAF, and 100 TAF, respectively. If Reclamation does not meet or exceed the Iron Gate Dam flows described in Table 5.9 and provide the additional volume of water specified during water years 2003 through 2005, it must reinitiate section 7 consultation with NMFS. The amount of this additional water continues to increase with each successive water year as Reclamation continues to develop water resources to support a reliable water bank. This additional water should improve instream flows for coho in the lower Klamath River main stem beyond the flows established in Table 5.9 and could be used to: (1) improve downstream smolt survival and improve coho fry survival in the spring; (2) investigate effect on increased summer flows on summer rearing conditions for juveniles in the main stem; or (3) used to both achieve some combination of (1) and (2). By March 31 of each year, NMFS and USBR will determine how this additional water will be distributed for release.

In addition, in order to prevent potential coho salmon stranding, Reclamation will operate the Project to provide water and coordinate with PacificCorp to achieve the following rates for ramping down of flows between monthly or biweekly timesteps below Iron Gate Dam: (1) decreases in flows of 300 CFS or less per 24-hour period and no more than 125 CFS per four-hour period when Iron Gate Dam flows are above 1,750 CFS; or (2) decreases in flows of 150 CFS or less per 24-hour period and no more than 50 CFS per two-hour period when Iron Gate Dam flows are 1,750 CFS or less.

11.2.2 Conservation Implementation Program

Achieving the target flows NMFS has proposed based on the Hardy and Addley (2001) coho fry habitat suitability curves, will likely require more contributions to flow than can be reasonably provided by Reclamation alone. The States of California and Oregon have played a key role in determining how the Klamath River Basin's water resources have been developed and allocated and a direct role in enforcing existing water rights. At the same time, the States are responsible for management of fish and wildlife resources. Similarly, Reclamation is a pivotal player because it is responsible for the operation of the Klamath Project which substantially affects flows, fish habitat, and water quality in the Klamath River below Iron Gate Dam. PacificCorp has interest because it uses instream flows resulting from Reclamation's Klamath Project to generate hydropower. NMFS, through the Secretary of Commerce, is responsible for administering the ESA. Tribes also have considerable interest in water management in the Klamath River Basin because the Tribes' established fishing rights are dependent upon sufficient instream flows to support viable tribal fisheries.

Because the existence of the Klamath Project is not the only human activity that adversely affects aquatic habitat and anadromous salmonid populations in the Klamath River, this RPA strives to address the larger context of actions that affect threatened salmon in the Klamath River Basin. To begin to effectively address these broader issues, Reclamation will establish in Phase I, by a Memorandum of Understanding (MOU) among NMFS, FWS, Reclamation, BIA, the States of California and Oregon, and the Tribes a “Conservation Implementation Committee.” The MOU will be completed by the end of 2002. The immediate responsibilities of the Committee will include, but will not be limited to:

- Establishment of a science review panel and oversight of the development and implementation of scientific studies to refine the long-term RPA targets and address other prioritized investigations.
- Oversight of the identification and implementation of actions, beyond the operation of the Klamath Project, to supplement main-stem flows achieved in Phase II to achieve long-term RPA targets and improve habitat conditions for salmon on important lower Klamath Basin main-stem tributaries.
- Further develop information to define the relative importance of the main stem and tributary habitat in the Klamath River Basin, including a program to monitor the distribution and abundance of naturally spawning coho and juvenile coho. The lack of this basic data is a deficiency that needs to be addressed so that the correlations between flow and coho survival that NRC Committee found lacking can be established.

NMFS also expects this Committee to facilitate:

- Development and implementation of feasibility studies, under the Klamath Basin Water Supply Act (P.L. 106-498) to identify opportunities for increased surface storage, ground water development, and winter irrigation.
- Review and application of new studies that improve understanding of the factors limiting the recovery of coho salmon in the Klamath Basin. Possible reports include the NRC’s report scheduled for finalization in March 2003.
- Review of the methodology and results of the determination of Reclamations proportion of responsibility. NMFS and Reclamation used proportion of acres irrigated to define this amount. The committee should review this approach to determine whether the irrigated acreages are correct and whether irrigated acres is an appropriate measure or whether volume of water diverted or consumed would be a better measure.
- Leasing of water rights in the upper Klamath Basin (outside of Project) to improve main stem flows and leasing of water rights in the Scott and Shasta Rivers to improve both

main stem and tributary instream flows. Assurances should be provided that leased water remains in the rivers to benefit coho.

- Consider elimination of inter-basin transfer of Klamath River water to the Rogue River Basin to improve flows in the Klamath River.
- Pacificorp's active participation in the development of the water bank and recognition of headwater benefits that will potentially result from increased Klamath Project flows.
- California's Department of Water Resources enforcement of established water rights on the Scott and Shasta Rivers, and Oregon Department of Water Resources enforcement of water rights application process while and until the Upper Klamath River Basin adjudication process is completed.
- Coordinated water management plans in the Shasta and Scott Rivers to minimize the potential that simultaneous water diversions will strand salmon.
- Initiation of studies to identify minimum instream flows to conserve coho on the Shasta and Scott Rivers.
- Screening and gaging of all diversions in the Shasta and Scott Rivers.
- Gaging diversions in the above Upper Klamath Lake to ensure compliance with water rights applications.

11.2.3 Investigations and Science Review Panel

In order to continue to refine the RPA target flows identified in section 11.4, Reclamation will immediately implement scientific studies to address the questions described below.

(1) What are the effects of various summer Iron Gate Dam flow regimes on habitat refugia in the main stem Klamath River ?

(2) To what extent do different spring Iron Gate Dam flow regimes effect survivorship of coho smolts during outmigration?

The methodologies used to address these questions must provide robust information and analyses that are considered to be scientifically meaningful and valid. To accomplish these goals, Reclamation will appoint, with NMFS concurrence, a multi-disciplinary independent Scientific Review Panel, by December 2002, to advise in the development and implementation of investigations to better understand the effects of Klamath River main stem flows on coho survival. Reclamation will review with NMFS the composition and role of this panel, and they will jointly determine if modifications to the composition of the panel would be beneficial. The

specifics of the study design and implementation details should be consistent with a consensus agreement of the Scientific Review Panel. The use of a Scientific Review Panel will assist in the development of scientifically-supportable study designs and appropriate implementation of recommended study methodologies, and to ensure scientifically supportable conclusions are achieved. Reclamation should provide for funding to support the convening of the Scientific Review Panel and implementation of the studies.

During implementation of the study design developed by the Scientific Review Panel, Reclamation may vary Iron Gate Dam flows under this RPA during any water year type as long as any alteration of Iron Gate Dam flows follow the methodology approved by the Scientific Review Panel. We acknowledge that such a study may have to be repeated under a variety of meteorological conditions and perhaps over several years, and should include the entire practicable range of Iron Gate Dam releases. If the scientific findings from the above described study warrant establishment of alternative Iron Gate Dam flows, NMFS will amend the RPA long-term target flows.

As mentioned above, the Conservation Implementation Committee will identify additional studies that improve understanding of the factors limiting the recovery of coho salmon in the Klamath Basin. The Committee will utilize the Scientific Review Panel to assist in the development of scientifically-supportable study designs and appropriate implementation of recommended study methodologies to ensure scientifically supportable conclusions are achieved.

11.3 Phase II - 2006 - 2010

During the second phase of implementation of this BO (2006 - 2010), NMFS expects Reclamation to 1) maintain a water bank of 100 TAF, 2) contribute 57% of the long-term RPA flow to the river below Iron Gate Dam or the flow identified in its BA which ever is greater, 3) implement non-flow mitigation measures in cooperation with the Conservation Implementation Program, and 4) continue to conduct investigation to refine RPA flows and relationship between flow and coho survival.

11.3.1 Hydrology

By water year 2006 and through water 2012, Reclamation will meet or exceed its proportional share of its influence to Iron Gate Dam flows or Table 5.9 flows, whichever is greater. Reclamation's proportional share is calculated in the following manner. Using water from Upper Klamath Lake, Reclamation's Klamath Project irrigates 206,149 acres of land in the Upper Klamath Basin. Outside of the Project area, 157,000 acres of land are irrigated using water from the Klamath River above Upper Klamath Lake. The total irrigated area that affects flows in the Klamath River above Iron Gate Dam is 363,149 acres. Thus, the Project service area is responsible for 57 percent of the irrigated area that affects flows in the Klamath River above Iron Gate Dam. This percentage represents Reclamation's proportional share of responsibility of influence to Iron Gate Dam flows. To calculate Reclamation's proportional share of minimum

Iron Gate Dam Flows, the long-term RPA flows were multiplied by 0.57 for each water year type. In the instances where this calculation results in lower flow than are proposed in Reclamations biological assessment, Reclamation will provide the flows contained in the biological assessment (Table 5.9).

11.3.2 Conservation Implementation Program

During Phase II, NMFS expects the Committee to evaluate the results from investigations that were implemented in Phase I, and to make progress toward increasing flows toward the longterm planning target, as modified by new information.

11.4.0 Phase III

By water year 2010 and through water year 2011, NMFS expects that implementation of the Conservation Implementation Program will have resulted in achieving main stem lower Klamath River flow targets described below. NMFS expects Reclamation and other parties to manage the water resources of the basin to meet these flows unless NMFS modifies them based on results of scientific investigations conducted throughout the course of the decade covered by this RPA. In the event that BOR and the Conservation Implementation Committee are not successful in meeting the RPA flows (as adjusted by better understanding of the flow/coho survival relationship), NMFS and Reclamation will reinitiate consultation to: review the status of coho; consider modifying the flow schedule to reflect the best available science at that time, and additional measures to ensure SONC coho are not jeopardized by continuing operation of the Klamath Project.

11.4.1 Rationale for Long-term flow targets

11.4.2 March through June

NMFS has reviewed Hardy and Addley (2001), a draft report describing habitat-discharge relations of chinook salmon, coho salmon, and steelhead in sections of the Klamath River downstream of Iron Gate Dam, and finds that the report contains information and analyses that provide an acceptable basis for development of long-term flow targets. In developing long-term flow targets NMFS thinks focusing on conditions that provide adequate migration flows and daytime refuge habitat to optimize coho smolt survival is appropriate. Given that coho smolts have survived often difficult conditions for at least 15 months, and that all smolts must migrate to the sea through the main-stem Klamath River, NMFS thinks that the smolt life stage is an important life stage to protect and for which suitable conditions in the main stem Klamath should be provided.

As described in the Effects of the Proposed Action section of this biological opinion, NMFS expects smolt survival to increase with increasing spring flows.

NMFS is aware that the NRC Committee concluded in its April 30, 2002, letter to NMFS, that while smolts theoretically might benefit from higher spring flows that could reduce passage time and exposure to predators, there was no evidence from existing information to support this conjecture and that if low spring flows were limiting survival in dry years, then year classes from wet years should have been stronger than those from dry years.

NMFS is also aware that demonstrating a statistically significant correlation between year class strength and magnitude of flows is complicated by within year variability (i.e. a wet spring followed by hot dry summer would likely not produce the same benefit as wet spring followed by a cool summer), in river variability of other environmental parameters (competition from other fluctuating populations of other salmon species and variable predations rates by fluctuating predator populations) that affect survival and environmental variability in the ocean. Consequently, demonstrating a statistically significant correlation between flow and year class strength will likely take several generations of coho. Nevertheless, NMFS thinks that some evidence is available that suggests that coho smolts in the Klamath Basin benefitted from higher spring flows in 1998 and 1999. As reported in Section 8.3.2 of this biological opinion, water years 1998 and 1999 rank among the wettest years in historical record of the Klamath Project. Coho fry rearing in the tributaries and Klamath main stem probably experienced better habitat conditions during the spring of 1998. Due to the high flows in the Klamath River the following spring, the 1998 year class of coho fry should have again experienced relatively better habitat and survival conditions in the Klamath River during their outmigration as smolts in 1999. In the winter of 2001, wild adult coho returns from the 1998 brood stock to at least one Klamath River tributary (i.e., Scott River) was the highest since the 1970's. While this represents only one data point, NMFS thinks it is supportive of the conjecture that smolts benefit from good quality habitat during their migration to sea. It also supports NMFS view that continued monitoring of coho distribution and abundance is essential to understanding the relationship between flow and coho survival and that prudent planning for long-term management of flows below Iron Gate Dam should consider providing improved habitat for coho smolts.

While NMFS currently does not have a metric for determining the precise main-stem Klamath River flows required to provide adequate flows for smolts, NMFS thinks that appropriate smolt holding habitat and flow conditions will be provided if adequate coho fry habitat is also provided for the following reasons. Since coho fry and smolts co-occur during periods of the year that historically had peak river flows, both life stages would have likely evolved life history characteristics that would have optimized their survival. Therefore, providing adequate habitat conditions for one life stage would likely produce at least adequate habitat conditions for the other.

Field observations in the Klamath River confirm that both life stages tend to use habitats that are most available at relatively high flows. Smolts appear to require daytime resting habitat in the form of slack water, preferably with cover, and tend to use side channels adjacent to turbulent flow in the Klamath River (pers. comm. Tom Shaw, USFWS, April 2002). Field observations by USFWS note that coho fry are not necessarily found in the same locations as smolts, likely

because of the adjacent turbulent flow, but apart from the turbulence, the slack water component of the habitat is similar to coho fry habitat. The USFWS observations also confirm that this smolt habitat is available over the same range of flows as coho fry habitat (i.e., the smolt habitat is increasingly unavailable as flows subside).

McMahon and Holtby (1992) studied coho smolt behavior in a small, wood dominated stream on Vancouver Island. They found that coho smolt abundance was highly correlated to woody debris volume, and that 82% of smolts (N = 1260) observed during the day were within one meter, and 95% were within two meters, of woody debris. These smolts were generally found in the same habitats and areas as coho fry. The main stem Klamath River is not a wood dominated stream; however, woody debris cover is available along the rivers margins (Tom Shaw, USFWS, pers. comm, May 2002).

Also, crews from USFWS snorkeled rivers in western Washington to study habitat use by fish, and to determine the habitat value of riprap. Their observation of coho smolts during daylight hours lead them to the following conclusions (Roger Peters, USFWS, pers. comm.): (1) they are generally found in the same areas in which you would expect to see coho fry (near woody debris); (2) smolt behavior seems to be temperature dependent, with smolts being very photo-negative and deeply hidden in cover when water temperatures are cool (i.e., <10 degrees C), and more active and visible when temperatures are warmer; and (3) they are most often found rearing during the day in cover located near the bottom in eddy, dead water, or backwater (slough) habitats.

Therefore, NMFS thinks that evidence both from empirical observations in the Klamath River and other systems indicates the validity of using coho fry habitat as a surrogate for coho smolt habitat and flow conditions appropriate to optimize smolt survival during their downstream outmigration to the ocean.

Levels of coho fry habitat available under unimpaired flows were estimated by cross-referencing the one-dimensional habitat-discharge relations developed by Hardy and Addley (2001) (see Figure 6) with the monthly flow estimates for the Shasta River to Scott River reach for each water year type. NMFS chose the Shasta River to Scott River reach habitat-discharge curve for this analysis because Iron Gate Dam releases are the dominant contributor of flow to this reach, and this reach is the first main stem reach encountered by relatively high numbers of smolts emigrating from the Shasta River. NMFS chose to use the one-dimensional curves because the two-dimensional coho fry habitat-discharge curves provided in the Phase II report provide questionable results at lower modeled flows (see Figure 5). For example, the two-dimensional curve for the Iron Gate Dam to Shasta River reach suggests that coho fry habitat ceases its downward trend as modeled flows drop to approximately 1100 CFS, and begins to rise sharply as modeled flows drop to approximately 700 CFS. NMFS and the Phase II Technical Team generally think that this anomaly does not reflect reality. This “tail problem” also does not allow us to use the technique that we think is the most appropriate for determining flows levels for

coho smolts. Additionally, the Phase II report summarizes the comparison of one-dimensional and two-dimensional modeling as follows:

Both sets of simulations show expected habitat response functions that match well with field based observations for fry and spawning life stages as well as producing consistent results in terms of the juvenile life stages. We consider the results for both modeling approaches to represent valid but independent estimates of the flow versus habitat relationships within these two reaches. We also considered that the observed differences are within expected ranges of variability given the nature and differences in the respective modeling approaches from our experience in other systems.

Hardy and Addley (2001) provide habitat-discharge relations in the form of graphs depicting the relationship between flow and available weighted useable area (WUA) (i.e., habitat-discharge curves) (Figures 5 and 6). Maximum habitat is equivalent to the greatest quantity of WUA reached over the range of modeled flows. NMFS used the habitat-discharge relations and estimates of monthly unimpaired flow to estimate available habitat (i.e., WUA) for unimpaired flows during alternative water year types.

Given potential errors of 10% associated with stream gaging estimates and stream habitat modeling, a true loss of 10% WUA is probably indiscernible by the modeling procedures and may not reflect actual habitat losses. It seems reasonable that maintenance of flows providing habitat within 10% of unimpaired levels would probably have no predictable impact to the population. Whereas, reductions of more than 10% would be more likely to reflect actual diminishments of habitat from unimpaired levels. We face difficulty determining at what precise point further reductions in habitat harm the population. However, we note that reducing levels of fry habitat in the section between Iron Gate Dam and Shasta River by more than 20% would reduce habitat during average, above average, and wet spring months such that habitat conditions in the main stem become comparable to an unimpaired dry or below normal year. For example, the flow providing 20% less habitat than unimpaired flow during a below average April in the reach between Shasta River and Scott River is 1900 cfs, which is less than the 2059 cfs unimpaired flow in a dry April.

Assuming the long-term need to restore coho habitat in the Klamath River main stem, NMFS' opinion is that fry habitat should be maintained at not less than 80% of unimpaired levels (i.e., a reduction of not more than 20% of unimpaired) as a long-term target.

Using coho fry habitat suitability curves as a surrogate for coho smolts, we determined the long-term Iron Gate Dam flow release regime by first estimating the amount of habitat that would be available in the Shasta River to Scott River reach under unimpaired flows using the one-dimensional habitat-discharge curve for coho fry in Hardy and Addley (2001) (Figure 6). We then subtract 20% of available habitat, depending on the water year type, to arrive at the flow that would provide the corresponding level of available habitat. Next, we estimate accretions between Iron Gate Dam and the midpoint of the Shasta to Scott River reach by calculating the

differences in the simulated unimpaired monthly flows for the Shasta River and Scott River reach and the simulated unimpaired monthly flows for the Iron Gate to Shasta River reach (Tables 51 and 54 in Hardy and Addley, 2001). We then subtract the estimated accretions between Iron Gate Dam and the midpoint of the Shasta to Scott River reach to determine the necessary Iron Gate Dam release needed to produce the recommended flow in that reach. See Figure 9 for an example of this technique. Using this technique, NMFS calculated the long-term target flows. Under this RPA, NMFS considers these minimum instantaneous flows (see Table 9).

We also think that March flows should not be based on the previous April's water year forecast. The flow recommendation for the first week of March should be based on the 70% exceedence forecast typically released on February 6, and the remaining March flow should be based on the March 6 estimate. This will avoid a situation, for example, in which a "wet" water year leading into a "dry" water year would see March flows as high as 2750 CFS and April flows dropping to 1500 CFS.

11.4.3 July through September

During this time of year, Klamath River main stem temperatures typically become elevated above those considered tolerable for coho salmon. In addition, water quality can be degraded and salmon and steelhead in the main stem sometimes succumb to diseases that contribute to "fish kills."

The relationship between Project operations, water temperature and quality of Iron Gate Dam releases, and conditions that exacerbate fish disease mechanisms is complicated and not fully understood. For example, the water temperature modeling component of SIAM indicates that, over the course of the irrigation season (April through September), water temperatures in the main stem are likely affected by differential Project operations and associated water releases at Iron Gate Dam. Specifically, results from the water temperature model as applied in dryer water years (when ambient temperatures are higher) suggest that in general, the mean daily temperature of Iron Gate Dam releases are higher during the summer directly below Iron Gate Dam under relatively high Iron Gate Dam flows. The same modeled scenarios also suggest that at Seiad Valley this relationship is reversed and mean daily water temperatures are expected to be relatively lower under relatively high Iron Gate Dam flows. In both locations, maximum daily water temperatures predicted by the companion regression model are expected to be closer to the mean water temperatures with higher Iron Gate Dam flows in the summer. Although the water temperature model applied by Deas and Orlob (1999) indicates that the magnitude of diurnal water temperature fluctuations differ from Iron Gate Dam to Seiad Valley, this model also indicates that temperatures increase more in this main stem reach under relatively low flows, and less under higher flows. This supports the general expectation that diurnal temperature fluctuations in the main stem are higher under lower summer flows.

In addition to affecting the summer temperature regime in the main stem, Iron Gate Dam releases can also affect "cooler" refuge areas (defined in the Effects of the Proposed Action section of this

biological opinion), both those that have been identified (e.g., see Belchik 1997 and McIntosh and Li 1998) and those that have not. NMFS suspects that the interaction between Iron Gate Dam releases and these thermal refuge areas are complicated and vary among individual refuges (e.g., tributary confluence areas), and are substantially affected by meteorological conditions and associated tributary flows and temperature regimes. In addition, the suitability of the potential fish habitats that exist in these areas are not solely a function of mean water temperatures, but also must provide appropriate water depth, velocity, cover, and should either provide adequate food resources or such resources should be available within close proximity. Based on the extremely low tributary accretions to the main stem between Iron Gate Dam and Seiad Valley during the summer of 2001, NMFS cannot simply assume that the net “benefits” of associated refuge areas decrease with any Iron Gate Dam flow increases relative to those experienced in other drought years. Again, based on the limited information available, NMFS finds that the extent to which the value of these refuge areas are enhanced or degraded by relatively high versus relatively low Iron Gate Dam summer releases is unknown and needs to be investigated.

Previously in this biological opinion, the recommendations for summer flows that resulted from associated studies were discussed as well as the flows that would likely result from Reclamation’s proposed action. Given that: (1) there is substantial uncertainty of the expected affects to coho salmon summer rearing habitat in the main stem; (2) Hardy and Addley 2001 recommend minimum dry summer flows of 1,000 cfs and higher summer flows in wetter years; and (3) coho juveniles have been observed in the main stem in water in excess of 20 EC; 4) higher flow, in the vicinity of 1000 cfs are not expected to increase temperatures and would have the benefit of dampening the magnitude of diurnal fluctuations in temperature (Deas and Orlob, 1999); NMFS recommends maintaining 1,000 cfs as a long-term planning target for releases from Iron Gate Dam during the July through September period in all water year types until a well-designed study of the main stem and refuge areas is developed and implemented under the conditions established in section 11.2.3.

11.4.4 October through February

During this time of year, adult coho salmon enter the Klamath River and begin their spawning migration. As previously discussed in this biological opinion, adequate passage conditions must be provided in the main stem and depending on meteorological conditions, Iron Gate Dam releases may affect passage conditions along the length of the river. Regardless of meteorological conditions, Iron Gate Dam releases influence passage and spawning conditions immediately downstream of Iron Gate Dam, and may influence passage conditions from the main stem into individual tributaries where most coho salmon spawning occurs.

For wet, above average, and average water year types (as defined in section 11.2.2), NMFS finds that the Iron Gate Dam flows that are likely to result from implementation of the proposed action are sufficient and appropriate. In summary, the FERC minimum flow regime for this time period (1,300 CFS) was based on limited measurements and observations by biologists, and the draft Phase II Flow Study Report similarly found that fall chinook spawning habitat would be adequate

in the Iron Gate Dam to Shasta River reach under this Iron Gate Dam discharge. NMFS assumes that main stem passage, tributary access, and spawning habitat for coho salmon will also be adequate under this Iron Gate Dam flow regime.

During below average and dry water year types (as defined in section 11.2.2), the amount and timing of increased Iron Gate Dam releases (relative to the previous September flows) should be considered in the context of real-time water supply information, meteorological conditions, and adult salmon migration observations. Accordingly, unless modified by future study results, NMFS includes the recommendation for interagency and intergovernmental coordination during mid-September of any below average and dry water years. In addition to careful consideration of “real-time” data, this approach would allow for a rational transition for the end of a dryer year to the beginning of an unknown water year type. This would preclude the possibility of releasing water unnecessarily and attracting adult coho to poor quality habitat that will likely exist prior to commencement of fall rains.

As part of this RPA, in below average and dry water years, Reclamation will convene a group of representatives of Reclamation, NMFS, USFWS, BIA, CDFG, the Yurok Tribe, the Karuk Tribe, the Hoopa Valley Tribe, the fishing industry and the farming community by mid-September to discuss current hydrologic, meteorologic, and biological conditions and seek consensus on Iron Gate Dam flow changes for the October through January time period. Although NMFS envisions that 1,300 CFS Iron Gate Dam releases should be the “starting point” for such discussions, NMFS also acknowledges that alternative Iron Gate Dam flows may be appropriate during the transition from the end of a below average or dry water year to an unknown year. Should the group convened by Reclamation for this purpose fail to reach consensus on fall and winter flows under these conditions, NMFS will consider the views of all of the group’s members and establish a formal recommendation for the October through January period, and this recommendation will explicitly become part of this RPA. NMFS also anticipates that additional meetings of this group may be appropriate to consider additional information as it becomes available. At the end of the January period, new water supply forecasts available in early February will help guide Iron Gate Dam flow decisions associated with the next operations year as outlined in the “March through June” section of this RPA. Reclamation will evaluate whether utilization of such a group for these purposes would require an exemption under the Federal Advisory Committee Act.

The flow recommendation for the first week of March should be based on the 70% exceedence forecast typically released on February 6, and the remaining March flow should be based on the March 6 estimate.

11.4.5 Long-term flow targets and future modifications

By water year 2006 and through water year 2012, Reclamation will meet or exceed its proportional share of its influence to the Iron Gate Dam flows identified in Table 9 of this RPA or flows described in Table 5.9 of the BA (Reclamation 2002), whichever are greater. By water

year 2010 and through water year 2011, NMFS expects that the implementation of the Conservation Implementation Program to have resulted in achieving main stem lower Klamath flows identified in Table 9 below. If the scientific findings from additional studies and reports, including those proposed under Section 11.2.2 and 11.2.3 of this RPA, the final NRC report, and final Hardy II report, at any time during the 10-year period warrant modifying Iron Gate Dam flows identified in Table 9, NMFS will consider those findings and make appropriate adjustments to Table 9. Future adjustments to long-term flows may also include an evaluation of whether adjustments should be made to better mimic the shape of the natural hydrograph and minimize the potential for stranding events during monthly transitions between flow targets. For example, monthly flows should probably avoid “flat-line” flows that do not produce some variability in flow for extended periods (e.g., between months). Adjustments could also include dividing certain months (e.g., March through June) into weekly flow recommendations to better mimic the natural hydrograph. In addition, additional adjustments in spring months might be necessary in dry and below average water years to be more conservative in years when risk to coho could be greater (e.g. a reduction of not more than 10% of habitat as opposed to a reduction of 20%). If NMFS finds that the long-term flows should be modified based on the findings from these additional studies and reports, NMFS will amend the long-term flows accordingly.

The following Table is a summary of the Iron Gate Dam long-term flow targets expected to be achieved by water year 2010 unless modified by study results. These flow targets are instantaneous minimum flows.

Table 9. Recommended Long Term Iron Gate Dam Discharge By Water year Type					
Month	Dry	Below Average	Average	Above Average	Wet
October	1,300*	1,300*	1,300	1,300	1,300
November	1,300*	1,300*	1,300	1,300	1,300
December	1,300*	1,300*	1,300	1,300	1,300
January	1,300*	1,300*	1,300	1,300	1,300
February	1,300*	1,300*	1,300	1,300	1,300
March	1,450	1,725	2,750	2,525	2,300
April	1,500	1,575	2,850	2,700	2,050
May	1,500	1,400	3,025	3,025	2,600
June	1,400	1,525	1,500	3,000	2,900
July	1,000	1,000	1,000	1,000	1,000
August	1,000	1,000	1,000	1,000	1,000
September	1,000	1,000	1,000	1,000	1,000

* Convene “Between Year Transition Group”

NMFS notes that the flow for wet years are less than for above average flows in March through June and that flows for above average years are less than average years for March and April. This

a result of the shape of the coho fry habitat suitability curve from Hardy and Addley (2001) which was used to derive the flows in the Table (see Figure 6). This characteristic of the curve may change when the final Hardy and Addley report is finalized. NMFS does not view this a problem because in most wet years (as defined by the 10% probability of exceedence) will have uncontrolled spill in March, April, and perhaps May.

11.5.0 Notification

Because this biological opinion has found jeopardy and adverse modification of critical habitat, Reclamation is required to notify NMFS of its final decision on implementation of the reasonable and prudent alternative.

12. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulations adopted pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by NMFS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Adverse effects of management actions such as these are largely unquantifiable in the short-term. The NMFS expects some level of incidental take to occur due to implementation of some of the actions outlined in the reasonable and prudent alternative. However, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take of Klamath River coho salmon. The NMFS anticipates that water quality and habitat conditions for various coho salmon life stages that would result from implementation of the reasonable and prudent alternative would likely result in a level of take that does not constitute jeopardy to SONC coho salmon. Take of individual coho salmon would be difficult to detect because finding a dead or injured salmon is unlikely due to the fact that salmonids occur in dynamic habitat, (i.e., flowing water, that makes such detection difficult). Water quality and habitat conditions resulting from the reasonable and prudent alternative, while minimally predictable, would have an impact that is not precisely known, and by extension, the impact to an unknown quantity of coho salmon expected to be present in the main stem Klamath River is not precisely known. However, while the water quality and habitat impacts resulting from Project operation have been reduced by the reasonable and prudent alternative, and precise impacts to

coho salmon and their habitat are unknown, each incremental reduction in water quality and habitat in the stream channel represents a portion of the combined impacts to salmon in a given watershed.

As stated earlier in this biological opinion, some take may occur due to spring time reductions in flow as the project transitions for uncontrolled spills to controlled operations. Rates for ramping down releases during this transition prescribed to minimize stranding of juvenile coho. However, NMFS is unable to predict water year types so NMFS cannot determine what actual flows will be below Iron Gate Dam in the future. Therefore NMFS is not able to estimate number of strandings of coho salmon that might occur as result of reducing flows. However, NMFS expects that several flow study and water temperature and quality data collection efforts will be ongoing during this period, and observations will provide in-season information regarding actual fish strandings that may occur. NMFS expects that this circumstance will only affect the small portion of the population that is resident in the main stem below Iron Gate Dam and it will be mitigated observation of the prescribed ramping rates and rescue efforts similar to those that were implemented in 2000 and 2001 by State, Federal, and Tribal biologists. The low levels of coho salmon stranding resulting in mortality is not likely to cause jeopardy to the species.

12.1 Reasonable and Prudent Measures

NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of SONC coho salmon resulting from the ongoing operation of the Project.

Reclamation shall:

1. Arrange for the ongoing collection and analysis of information to further understand the relationship between Iron Gate Dam water releases and suitable downstream salmon habitat in the Klamath River;
2. Continue its efforts to identify additional water supplies in the Klamath Basin.

12.2 Terms and Conditions

In order to enjoy the protections provided under section 7(b)(4) or 7(o)(2) of the ESA, Reclamation must comply with the following terms and conditions, which implement and document implementation of the reasonable and prudent measures described above. These terms and conditions are non-discretionary. Reclamation shall do the following:

1. Provide a summary report outlining the status of the water supply initiative, identified opportunities with regard to water supplies, and current scoping of implementation strategies. This report will be provided to NMFS by February 1 of each year covered by this biological opinion.

2. Reclamation shall study methods to treat and/or recycle agricultural return flows from the Klamath Project service area before release into the Klamath River within the next three years. Once effective methods are identified, Reclamation should seek funding to develop and operate such systems in the Klamath Project service area.
3. Reclamation shall conduct a feasibility study to develop off-stream storage in the Lower Klamath Lake area to store additional water for fish and wildlife enhancement purposes. Reclamation should seek funding to develop such storage areas for these purposes.
4. Reclamation shall fund a study on the feasibility of developing groundwater resources to replace surface water use or by discharging groundwater directly into Shasta and/or Scott Rivers.
5. Reclamation shall fund instream flow studies on both the Shasta River (from Dwinell Dam to Parks Creek) and Scott Rivers to assist in the development of minimum instream flows.
6. Reclamation shall provide funding to support installation of screened diversions on unscreened diversions and gaging devices on diversions in the Scott River and Shasta River to facilitate better State enforcement of appropriated water rights and reduce fish entrainment.
7. Reclamation shall work with non-governmental organizations and the State of California to develop a management plan on the Scott River and Shasta River that coordinates simultaneous diversions of instream flows to minimize dramatic reductions in flow, and the stranding of fish, at the beginning of the irrigation season in March and April.
8. Reclamation shall investigate the feasibility of discontinuing the inter-basin transfer of water from the Klamath River to the Rogue River Basin and reserving that water for instream flow in the Klamath River below Iron Gate Dam.

13. CONSERVATION RECOMMENDATIONS

Reclamation should ensure that the environmental documentation necessary to implement increased flow in the Trinity River consistent with the Trinity River Restoration Program and the existing court order limiting implementation of the Record of Decision is completed as quickly as possible.

Reclamation should assist the State of Oregon in revitalizing and completing the Alternative Dispute Resolution process established to resolve water right adjudication disputes in the Upper Klamath Basin.

14. REINITIATION OF CONSULTATION

This concludes formal consultation on Reclamation's proposed ongoing operation of the Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. Specific to element (2) above, NMFS will evaluate the final Hardy and Addley report and the final report from the NRC Committee on Threatened and Endangered Fishes in the Klamath River Basin and determine whether they contain new information that would warrant reinitiation of consultation. Finally, if any of the provisions of the RPA are not implemented as anticipated, NMFS will request Reclamation to reinitiate consultation.

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Figures

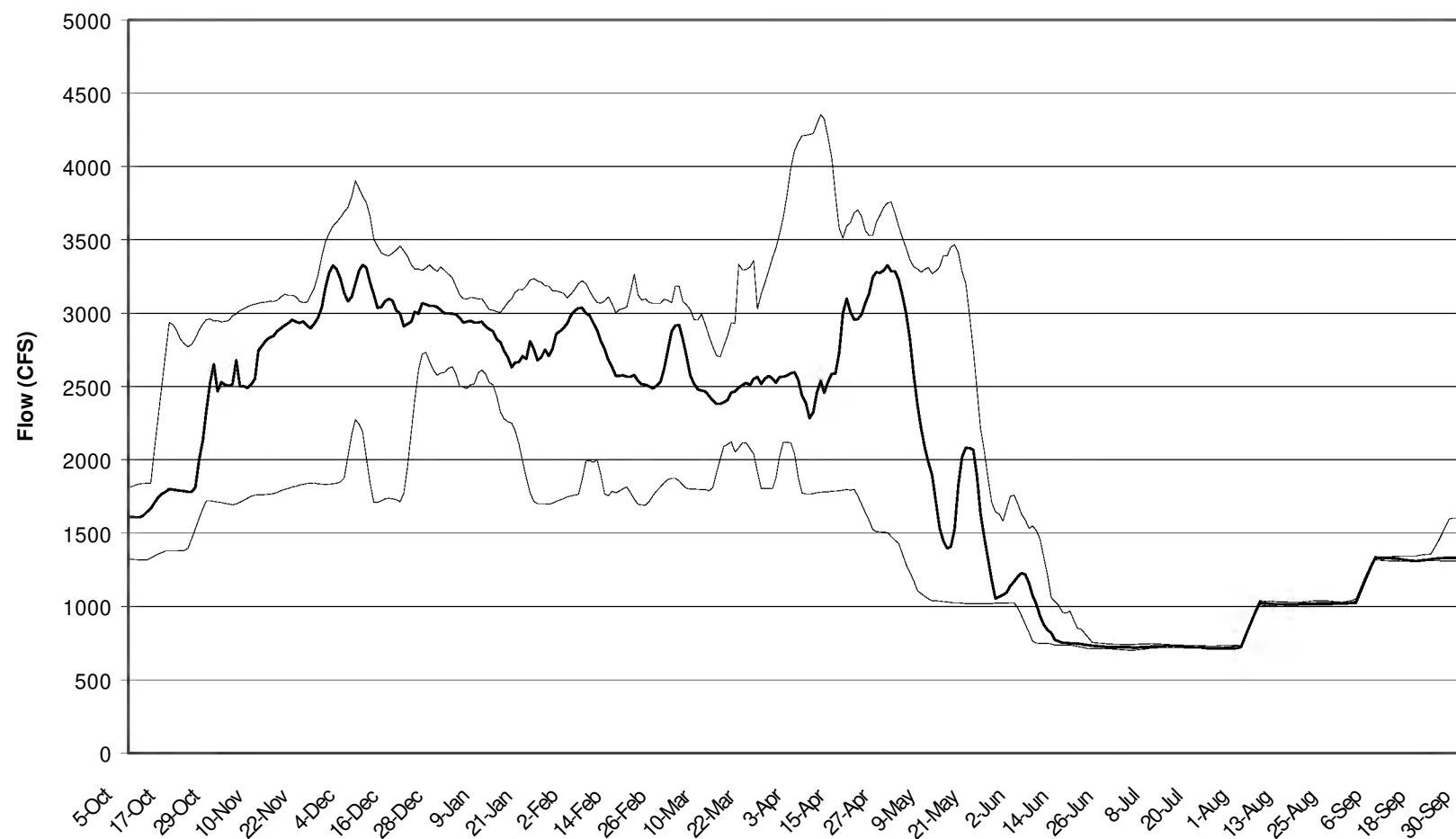


Figure 1. Average Klamath River flow at Iron Gate Dam, California - Normal water year median, 25th and 75th percentile (1963, 1966, 1969, 1970, 1973, 1985, 1989; 5 day moving average). Data are from Hydroshare Data Products, Inc. (1993).

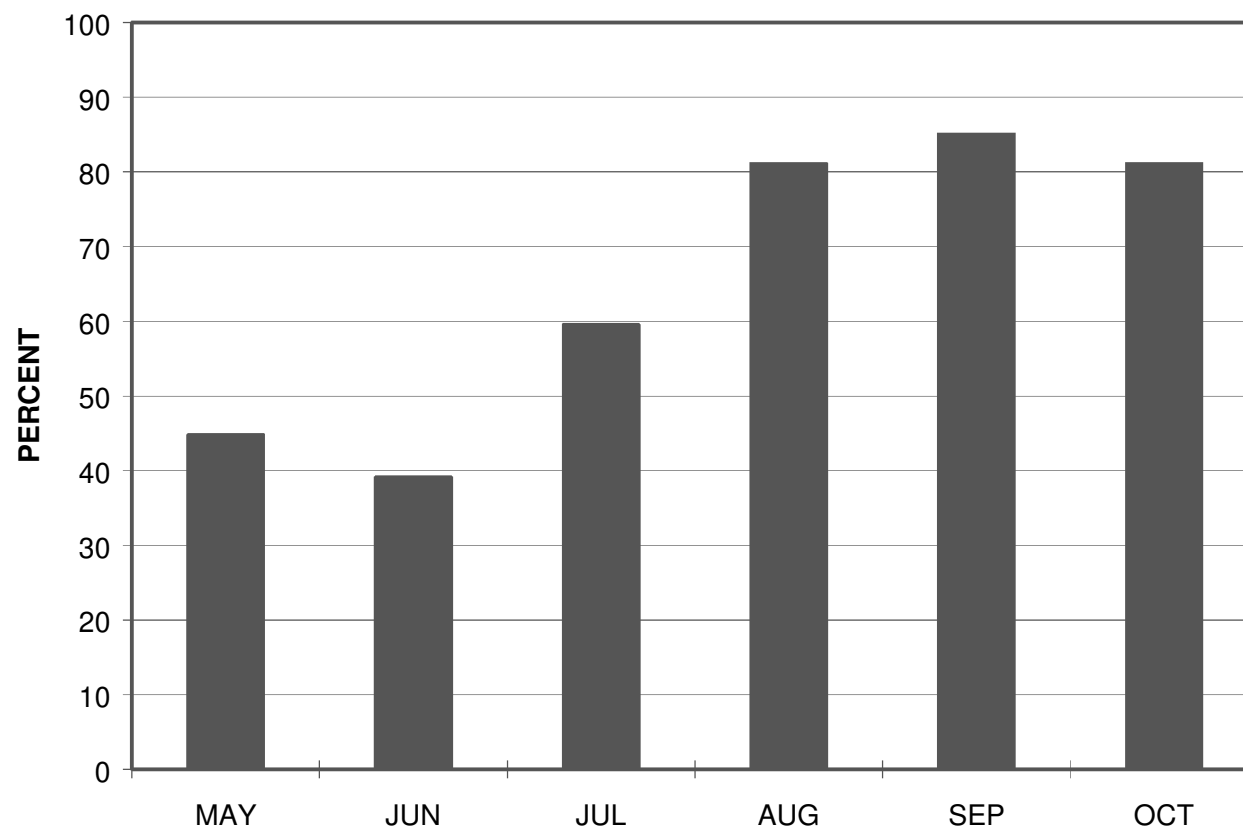


Figure 2. Monthly average Iron Gate Dam contributions to Klamath River flows measured at Seiad (1962-1991). Data are from Hydrosphere Data Products, Inc. (1993).

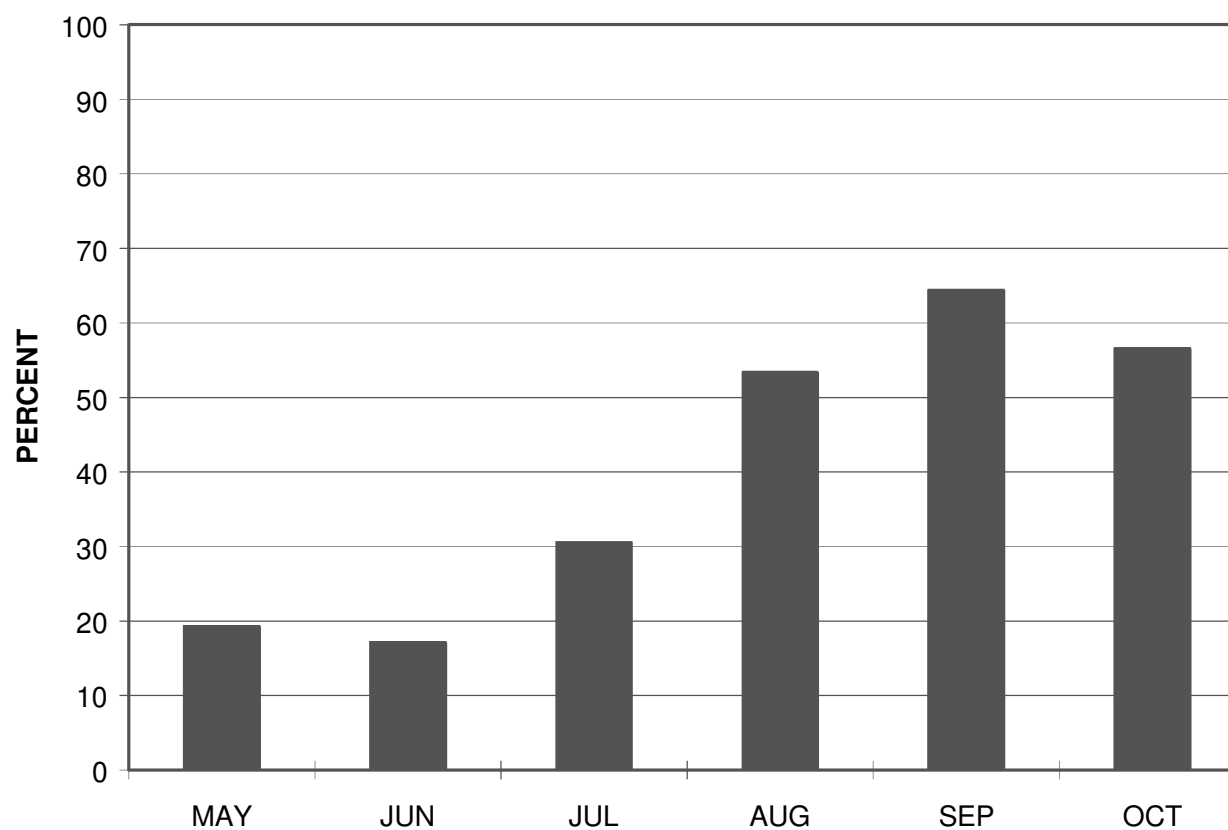


Figure 3. Monthly average Iron Gate Dam contributions to Klamath River flows measured at Orleans (1962-1991). Data are from Hydrosphere Data Products, Inc. (1993).

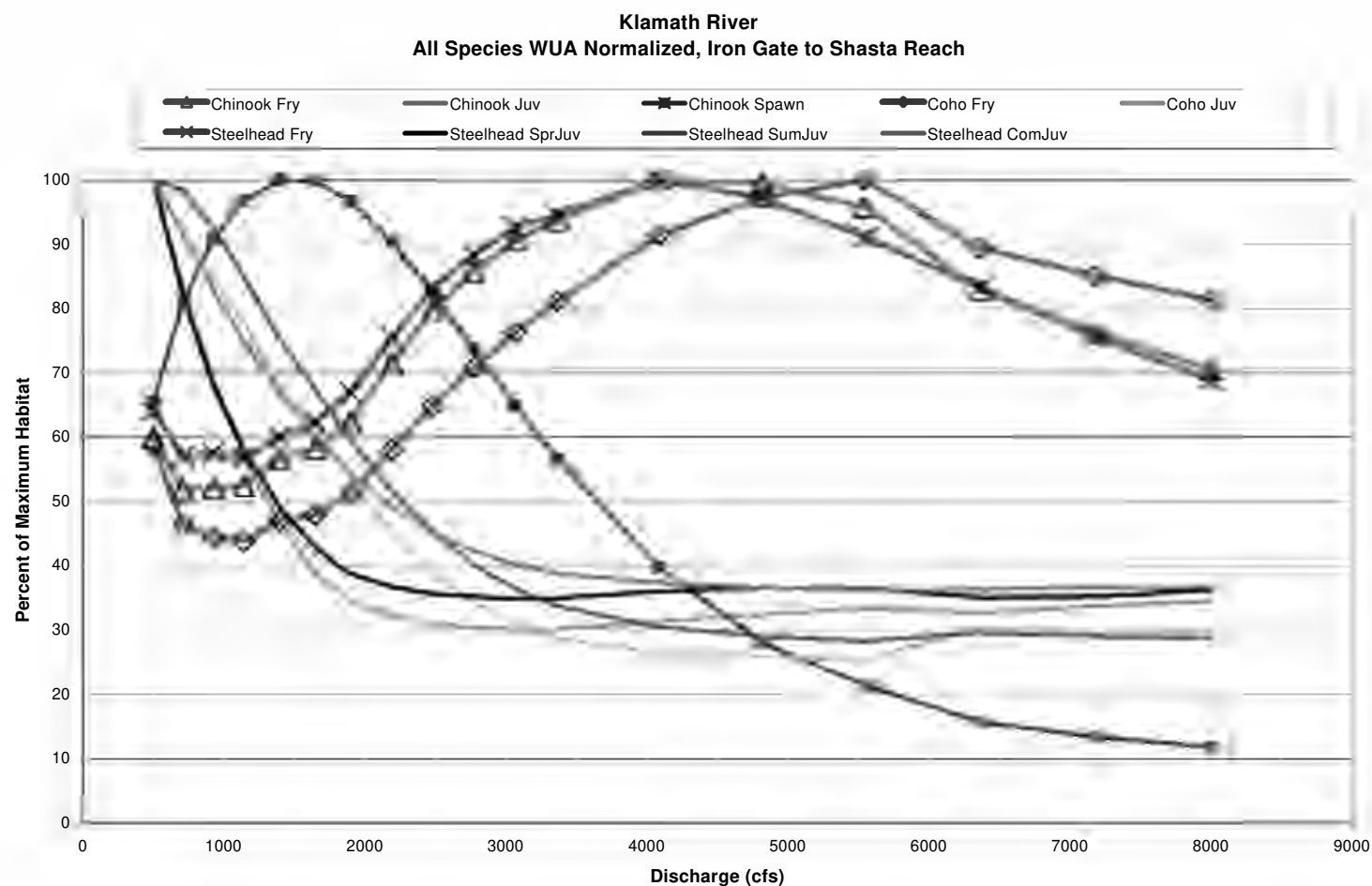


Figure 4 Relationship between percent of maximum habitat and discharge for each species and life stage for the Iron Gate to Shasta River reach. (Figure 128 of Hardy and Addley 2001)

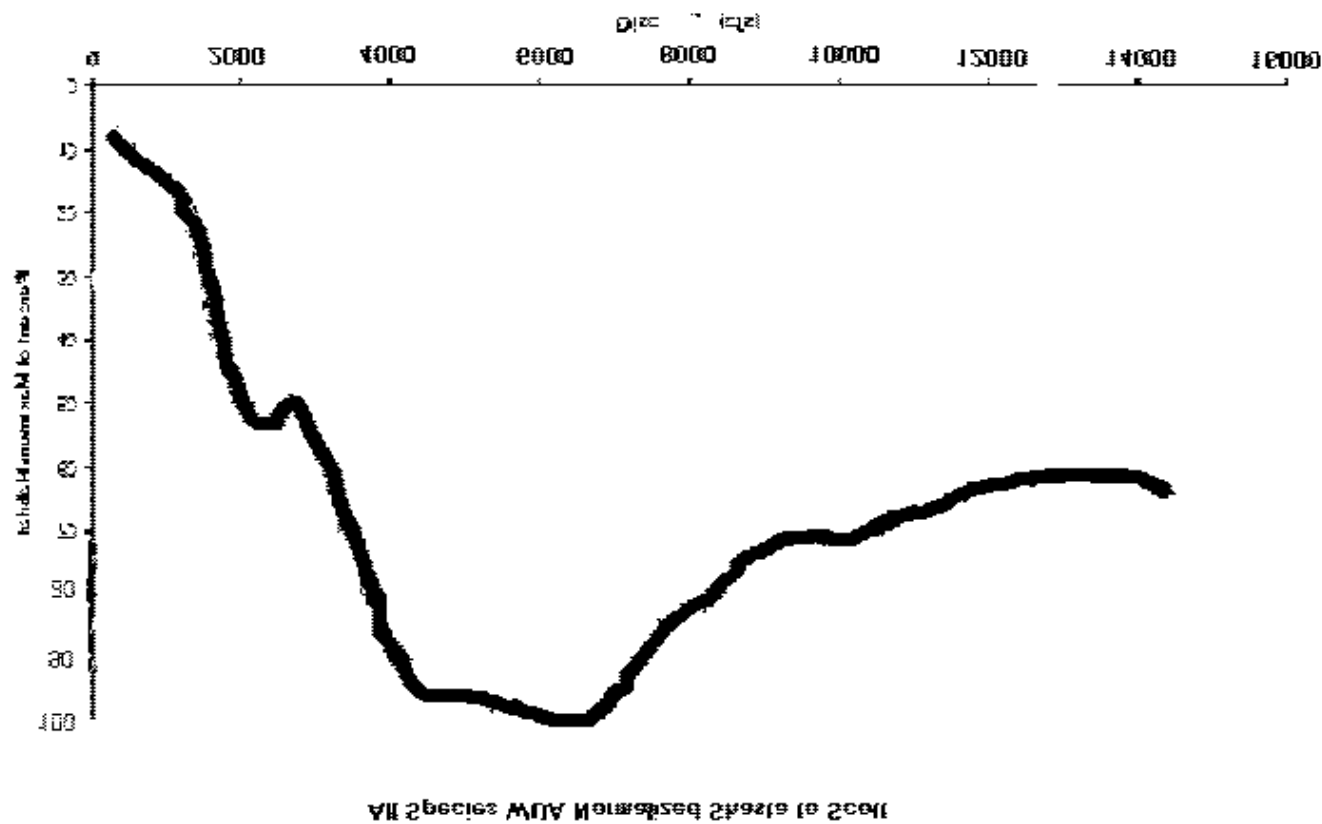


Figure 5 Relationship between percent of maximum habitat and discharge for coho fry for the Shasta River to Scott River reach. (Adapted from Figure 90 of Hardy and Addley 2001)

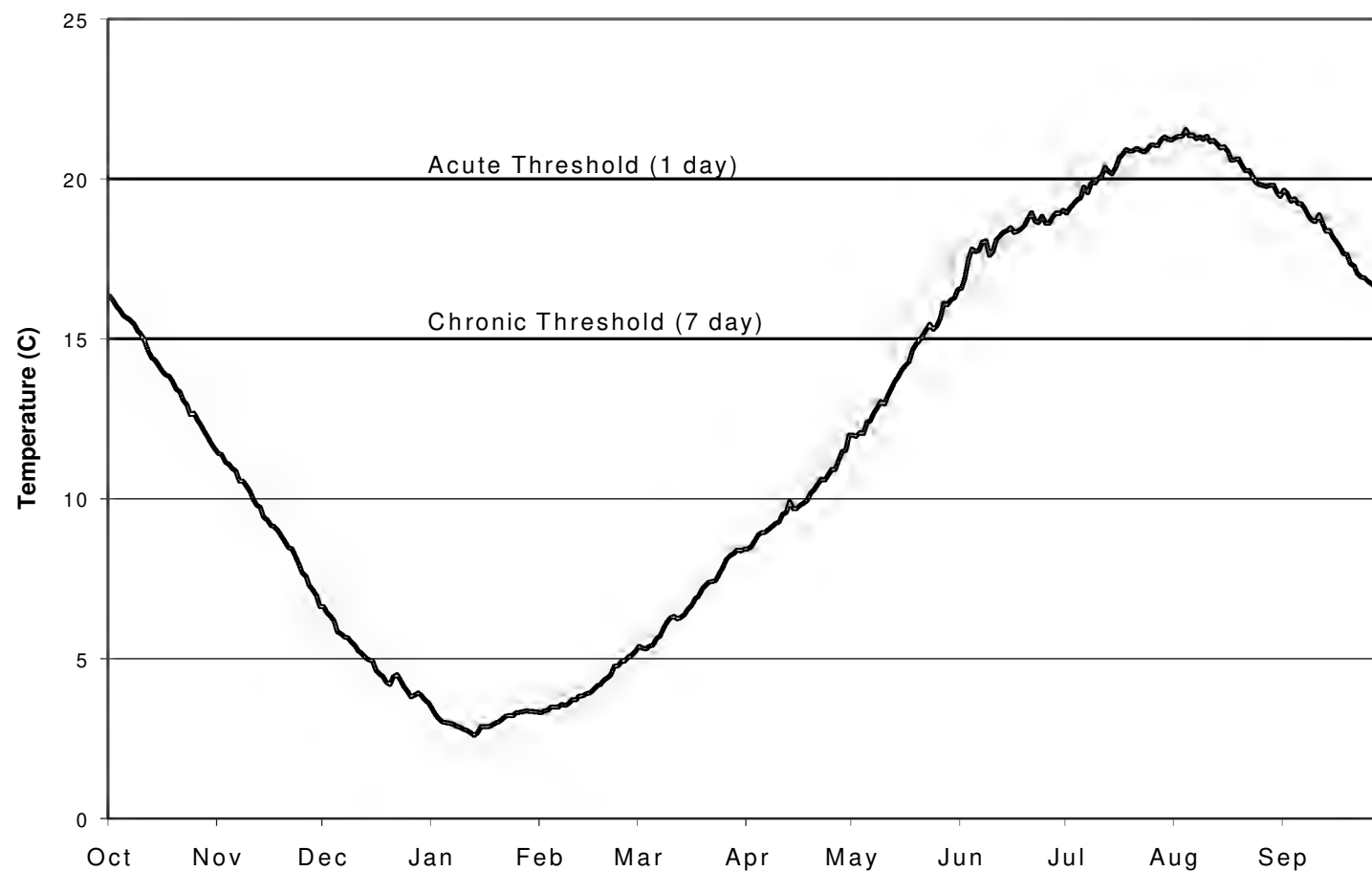


Figure 6. Average daily maximum water temperatures in the Klamath River below Iron Gate Dam (1963-1979). Acute and chronic high temperature thresholds are 1986 Environmental Protection Agency criteria (Campbell 1995). Data are from Hydrosphere Data Products, Inc (1993).



Figure 7. Average daily maximum water temperatures in the Klamath River at Seiad (1964-1978). Data are from Hydrosphere Data Products, Inc. (1993).

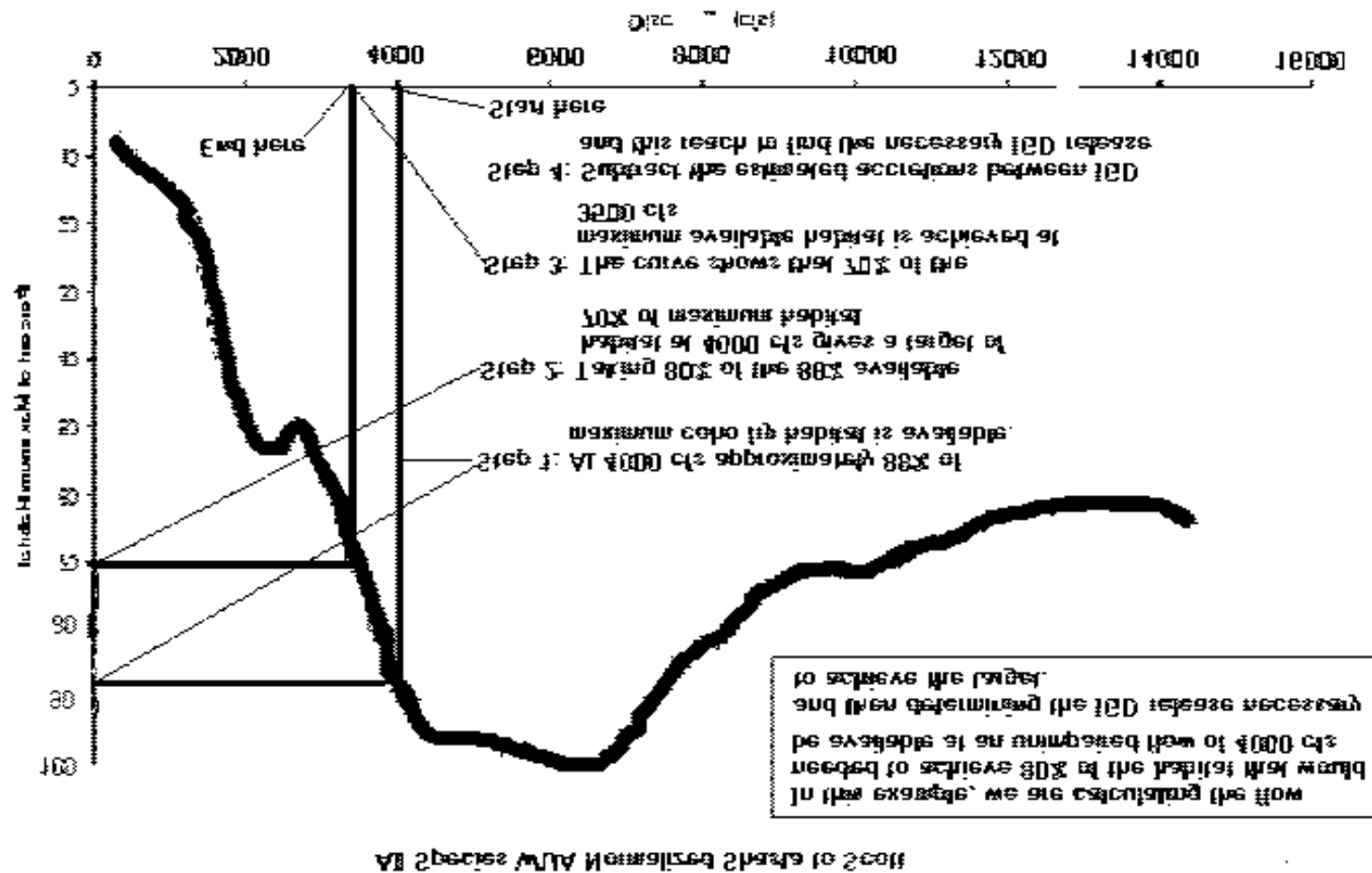


Figure 8. Example of method used to determine necessary flow release from IGD to achieve a target of 80% or 90% of maximum habitat available at a given unimpaired flow in the Shasta to Scott river reach.

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Attachment A

**MAGNUSON-STEVENSON FISHERY CONSERVATION
AND MANAGEMENT ACT (Magnuson-Stevens Act)**¹

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS²
U. S. Bureau of Reclamation Klamath Project Operations

I. IDENTIFICATION OF ESSENTIAL FISH HABITAT

The geographic extent of freshwater essential fish habitat (EFH) for the Pacific salmon fishery is proposed as waters currently or historically accessible to salmon within specific U.S. Geological Survey hydrologic units (PFMC, 1999). For the Klamath River watershed, the aquatic areas identified as EFH for chinook salmon and coho salmon are within the hydrologic unit map numbered 18010206 (Upper Klamath River) and 18010209 (Lower Klamath River). The upstream extent of Pacific salmon EFH in the Klamath River is Iron Gate Dam.

Essential fish habitat is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of EFH, “waters” include aquatic areas and their associated physical, chemical, and biological properties

¹The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) mandates Federal action agencies which fund, permit, or carry out activities that may adversely impact the essential fish habitat (EFH) of Federally managed fish species to consult with the National Marine Fisheries Service (NMFS) regarding the potential adverse effects of their actions on EFH (Section 305 (b)(2)). §Section 600.920(a)(1) of the EFH final regulations state that consultations are required of Federal action agencies for renewals, reviews, or substantial revisions of actions if the renewal, review, or revision may adversely affect EFH. Under Amendment 14 to the Pacific Coast Salmon Fishery Management Plan (PFMC, 1999), the Pacific Fisheries Management Council has identified and described EFH for chinook and coho salmon. The statute also requires Federal action agencies receiving NMFS’ EFH Conservation Recommendations to provide a detailed written response to NMFS within 30 days upon receipt detailing how they intend to avoid, mitigate or offset the impact of the activity on EFH (Section 305(b)(4)(B)).

² The EFH regulations require that Federal action agencies obligated to consult on EFH also provide NMFS with a written assessment of the effects of their action on EFH (50 CFR § 600.920). Because an EFH Assessment was not received for this project, NMFS relied on other sources of information including the attached Biological Opinion in preparing its EFH Conservation Recommendations.

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that are used by fish, and may include areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means habitat required to support a sustainable fishery and a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle.

The National Marine Fisheries Service’s biological opinion (Opinion) on Reclamation’s proposed operation of the Klamath Project between June 1, 2002, and March 31, 2012 addresses impacts to the threatened Northern California/Southern Oregon ESU coho salmon (*Oncorhynchus kisutch*), listed as threatened under the Endangered Species Act (ESA). These impacts include adverse effects to the habitat conditions required by coho salmon and which are also identified EFH as provided by the Magnuson-Stevens Act. The Klamath River basin also provides EFH to chinook salmon (*O. tshawytscha*), which are covered under the EFH provisions of Magnuson-Stevens Act, but are not listed under the ESA. This EFH consultation addresses both species but also refers the reader to more specific information pertaining to the habitat requirements of coho salmon contained in the Opinion.

II. ESSENTIAL FISH HABITAT REQUIREMENTS FOR CHINOOK SALMON AND COHO SALMON

Chinook: General life history information for chinook salmon is summarized below. Further detailed information on chinook salmon ESUs are available in the NMFS status review of chinook salmon from Washington, Idaho, Oregon, and California (Myers et al. 1998), and the NMFS proposed rule for listing several ESUs of chinook salmon (NMFS 1998).

The Klamath Basin system contains populations of spring-run and fall-run chinook (Campbell and Moyle 1990, Healey 1991, USFS 1995). Within the Klamath River Basin, there are statistically significant, but fairly modest, genetic differences between the fall and spring runs. The majority of spring- and fall-run fish emigrate to the marine environment primarily as subyearlings, but have a significant proportion of yearling smolts. These chinook salmon populations all exhibit an ocean-type life history. The majority of fish emigrate to the ocean as subyearlings, although yearling smolts can constitute up to approximately a fifth of outmigrants from the Klamath River Basin. However, the proportion of fish which smolted as sub-yearling versus yearling varies from year to year (Snyder 1931, Schluchter and Lichatowich 1977, Nicholas and Hankin 1988, Barnhart 1995). This fluctuation in age at smoltification is more characteristic of an ocean-type life history.

Coho: General life history information for coho salmon is provided in the Opinion and further information is available in the status review (Weitkamp et al. 1995). Primarily, adult and juvenile coho salmon are observed in tributaries and the main stem of the Klamath River although these observations often occur incidentally to efforts to monitor fall-run chinook salmon escapement.

Adult Immigration

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Chinook: Run timing for spring-run chinook salmon in this area typically begins in March and continues through July, with peak migration occurring in May and June (Table 1). Hardy and Addley (2001) noted that spring chinook can enter as early as February. Run timing for fall-run chinook salmon varies depending on the size of the river. Adult Upper Klamath fall chinook salmon return to freshwater in August and September and spawn in late October and early November (Snyder 1931, Nicholas and Hankin 1988, Barnhart 1995). In other coastal rivers and the lower reaches of the Klamath River, fall-run freshwater entry begins later in October, with peak spawning in late November and December—often extending into January (Leidy and Leidy 1984, Nicholas and Hankin 1988, Barnhart 1995). Late-fall or "snow" chinook salmon from Blue Creek, on the lower Klamath River, were described as resembling the fall-run fish from the Smith River in run and spawning timing, as well as the degree of sexual maturation at the time of river entry (Snyder 1931).

Table 1. Summary of timing for key salmon life history events related to EFH.

SPECIES	MONTHS		
	Adult Immigration	Spawning	Smolt Emigration
Spring run chinook	Feb. -July	late Aug - Sept. peak in Sept.	March - July
Fall run chinook	Aug. - Sept.	Sept. - early Jan.	April - June
Late-fall run	Nov.- Dec. but maybe as late as Feb.	Unavailable	Unavailable
Coho salmon	Sept. - December	Nov. - March	March - July with peak in May

All chinook stocks utilize resting pools as they migrate upstream (Myers et al. 1998). As noted in Myers et al. (1998), these pools provide an energetic refuge from river currents, a thermal refuge from high summer and autumn temperatures, and a refuge from potential predators (Berman and Quinn 1991, Hockersmith et al. 1994). Furthermore, the utilization of resting pools may maximize the success of the spawning migration through decreases in metabolic rate and the potential reduction in susceptibility to pathogens (Bouck et al. 1975, Berman and Quinn 1991).

Spawning for spring run chinook salmon may occur from September through mid - November (Hardy and Addley 2001) and can peak in September (Myers et al. 1998). Historically, spring-run spawning areas were located in the river headwaters (generally above 400 m). Spawning for fall-run chinook begins in September through early January.

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Coho: In general, river entry and spawn timing showed considerable spatial and temporal variability. Most coho salmon enter rivers between September and February and spawn from November to January (Hassler 1987), and occasionally into February and March (Weitkamp et al. 1995).

Spawning Habitat

Chinook: Chinook salmon spawning generally occurs in swift, relatively shallow riffles or along the edges of fast runs at depths greater than 6 inches, usually 1-3 feet to 10-15 feet. Preferred spawning substrate is clean and loose, medium to large-sized gravel. Hardy and Addley (2001) report that chinook also use small cobble substrate. Physical habitat modeling indicates that spawning habitat is maximized at approximately 1,300 CFS in the Iron Gate Dam to Shasta River reach during the October - February time frame (Hardy and Addley 2001). Egg incubation generally occurs from 40-60 days with alevins and fry remaining in the gravel between 2 -4 weeks and begin emerging during December. Hardy and Addley (2001) reported that suitable incubation temperatures were assumed to be between approximately 5^o and 14^o C as significant mortality occurs beyond this range.

Coho: In general, earlier migrating fish spawn farther upstream within a basin than later migrating fish, which enter rivers in a more advanced state of sexual maturity (Sandercock 1991). Spawning is concentrated in riffles or in gravel deposits at the downstream end of pools with suitable water depth and velocity.

Coho salmon eggs incubate for approximately 35 to 50 days between November and March. The duration of incubation may change depending on ambient water temperatures (Shapovalov and Taft 1954). Successful incubation depends on several factors including dissolved oxygen levels, temperature, substrate size, amount of fine sediment, and water velocity.

Rearing Habitat

Chinook: At the time of emergence from their gravel nests, most fry disperse downstream towards the estuary, hiding in the gravel or stationing in calm, shallow waters with fine sediment substrates and riparian bank cover such as tree roots, logs, and submerged or overhead vegetation. As they grow, the juveniles associate with coarser substrates along the stream margin or farther from shore (Healey 1991). Along the emigration route, submerged and overhead cover in the form of rocks, submerged aquatic vegetation, logs, riparian vegetation, and undercut banks provide food, shade and protect juveniles from predation. Chinook salmon in the Southern Oregon and California Coastal ESU exhibit an ocean-type life history, that is, they typically migrate to seawater in their first year of life (NMFS 1998). However, when environmental conditions are not conducive to subyearling emigration, ocean-type chinook salmon may remain in freshwater for their entire first year (NMFS 1998).

The fish rear in calm, marginal areas of the river, particularly back eddies, behind fallen trees, near undercut tree roots or over areas of bank cover, and emigrate as smolts from April through June. Hardy and Addley (2001) noted that chinook fry utilized habitat along the stream margins

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in association with cover versus the use of the main river channel. The authors also noted that a relatively small proportion of chinook fry were found associated with substrate specific cover compared to inundated streamside vegetation cover types at depths less than 2 feet. This association with shallow, vegetative escape cover indicates the importance of riparian habitat to the early life history stage of juvenile chinook.

Principal foods of chinook while rearing in freshwater and estuarine environments are larval and adult insects and zooplankton such as *Daphnia*, flies, gnats, mosquitoes or copepods (Kjelson et al. 1982), stonefly nymphs or beetle larvae (Chapman and Quistdorff 1938) as well as other estuarine and freshwater invertebrates.

Coho: Fry start emerging from the gravel two to three weeks after hatching (Hassler 1987). Following emergence, fry move into shallow areas near the stream banks. As coho salmon fry grow larger, they disperse upstream and downstream and establish and defend a territory (Hassler 1987).

During the summer, coho salmon fry prefer pools featuring adequate cover such as large woody debris, undercut banks, and overhanging vegetation. Juvenile coho salmon prefer to over-winter in large main stem pools, backwater areas and secondary pools with large woody debris, and undercut bank areas (Hassler 1987, Heifetz et al. 1986). Juveniles primarily eat aquatic and terrestrial insects (Sandercock 1991). Coho salmon typically rear in fresh water for up to 15 months, then migrate to the sea as smolts between March and June (Weitkamp et al. 1995).

II. PROPOSED ACTION

The proposed action is described in Section 4.0 of the Opinion.

III. EFFECTS OF THE PROJECT ACTION

As described in the Opinion, the proposed action can adversely affect coho salmon by decreasing survival and abundance of several freshwater life history stages of coho, including fry, juveniles, and outmigrating smolts. In drier water years, adult coho may be adversely affected by operation of the project. Adverse effects to the EFH of chinook salmon may be greater due to their greater reliance on main-stem habitat. However, the following summarizes the adverse affects to EFH for both species.

In dry and critically dry water years during October through March, the proposed action could adversely affect the EFH function of providing passage conditions for upstream migrating salmon and their spawning success in the Klamath main stem, as well as successfully migrating into tributaries.

Spring flows in the main stem provide important EFH that supports rearing functions. During the spring months of drier water years, the proposed action will affect Klamath River flows

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which will affect salmon fry rearing for individuals either originating from the main stem or migrating down from tributaries. Because the amount of flow in the main stem is related to the amount of suitable EFH for rearing salmon, salmon fry may be adversely affected if sufficient flows in the main stem are not maintained at appropriate levels. The survival of chinook salmon fry that cannot find suitable rearing EFH will most likely be impacted, thereby resulting in reduced survival. As noted in the section on rearing habitat, much of salmon rearing is associated with riparian corridors.

The riparian zone acts as the interface between terrestrial and aquatic ecosystems by moderating the effects of upslope processes and provides important ecological functions including bank stabilization, nutrient cycling, food-web support, and important stream microclimate and shading functions (Spence et al. 1996, Flosi et al. 1998, NRC 2002a). Riparian vegetation, including shaded riverine aquatic (SRA) cover, provides juvenile salmon cover from predators, increases habitat complexity, provides a source of insect prey and provides shade for maintaining water temperatures within suitable ranges for all life stages. The functional values of riparian corridors and the benefits they provide to stream fish populations are well documented (Karr and Schlosser 1978, Wesche et al. 1987, Gregory et al. 1991, Caselle et al. 1994, Wang et al. 1997). As noted by the NRC (2002a), the reintroduction or maintenance of the full range of flow regimes to mimic the natural hydrograph, in addition to minimum stream flow, is essential for restoring and sustaining, respectively, healthy riparian systems. NMFS is concerned that the proposed action results in flows that frequently create conditions that effectively distance the much of the riparian zone from the waters of the river, thereby limiting the function of the riparian zone.

In addition to supporting important riparian habitat functions, spring flows also facilitate the outmigration of salmon smolts. As reported in the Opinion, specific relationships between Klamath River flows and smolt survival have not been established. However, because information from other locations indicate a positive relationship between smolt survival and river flows, the proposed project will likely affect coho and chinook smolt survival.

Adverse effects to EFH can also result from reductions in water quality (e.g., water temperatures). While the relationship between Iron Gate Dam flows and water temperature is poorly understood, the Opinion concluded that diurnal water temperature fluctuations in the Klamath River are generally expected to be lower under relatively high Iron Gate Dam flows. Similarly, during summer months, flows from Iron Gate Dam comprise a substantial portion of Klamath River flows especially during drier water years. During summer months coinciding with “critically dry” water years, there may be no tributary accretions in certain reaches of the Klamath River and releases from Iron Gate Dam would represent the only water in the river in certain areas.

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IV. CONCLUSION

Upon review of the effects of Reclamation's proposed operation of Klamath Project, NMFS thinks that the proposed project on the Klamath River will adversely affect the spawning, rearing and migratory EFH functions of Pacific salmon currently or previously managed under the Magnuson-Stevens Act. Primarily, NMFS thinks that the proposed project would result in a continued decline in EFH conditions in the Klamath River over time, and thereby preclude rebuilding of the coho salmon population and reduce the habitat required to support a sustainable chinook fishery.

The EFH Conservation Recommendations below are designed to prevent further decline of EFH conditions over time.

V. EFH CONSERVATION RECOMMENDATIONS

The NRC committee on threatened and endangered fishes of Klamath River Basin states: “(C)hanges in the flow regime of the Klamath River may affect other fishes that have been proposed for listing as threatened species but are not yet listed (e.g., ESUs of steelhead and chinook salmon). The Committee, however, is charged with studying specifically the requirements of the three fish species mentioned above (*coho salmon*, *shortnose sucker* and *Lost River sucker*), and not of other species in the Klamath River Basin.” Therefore, the Committee's conclusions regarding the importance of main-stem Klamath River habitat to coho salmon do not necessarily apply to chinook salmon. Accordingly, NMFS thinks that main-stem flow conditions required by chinook salmon may differ from those required by chinook salmon. Hardy and Addley (2001) draft recommendations are optimized for fall run chinook in March, April, and May. NMFS is not prepared to recommend that Reclamation implement those flows because the draft recommendations may be modified as the report proceeds through public comment and peer review. Some commenters have pointed out deficiencies in the draft report that could result in changes to the recommendations (e.g. see W. J. Miller, 2002), therefore, NMFS thinks that reopening the EFH consultation when the final Phase II report is issued would be appropriate.

These recommendations are provided as advisory measures to Reclamation. Reclamation should:

1. Implement the Opinion's Reasonable and Prudent Alternative and the terms and conditions of the Incidental Take Statement.
2. Reinitiate EFH consultation with NMFS upon publication of the final report being prepared by Hardy and Addley, currently titled: Evaluation of Interim Instream Flow Needs in the Klamath River: Phase II - Volume I, to evaluate whether implementation of the final flow recommendations are necessary to prevent further decline of EFH conditions for chinook salmon over time.

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Section 305(b)(4)(B) of the Magnuson-Stevens Act and Federal regulations (50 CFR § 600.920) to implement the EFH provisions of the Magnuson-Stevens Act require federal action agencies to provide a detailed written response to NMFS, within 30 days of its receipt, responding to the EFH Conservation Recommendations. The response must include a description of measures adopted by the Agencies for avoiding, mitigating, or offsetting the impact of the project on Pacific salmon EFH. In the case of a response that is inconsistent with NMFS' recommendations, the Agencies must explain their reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR § 600.920(k)).

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**National Marine Fisheries Service
United States Fish and Wildlife Service**



Biological Opinions
on the
Effects of Proposed Klamath Project Operations from May 31, 2013, through
March 31, 2023, on Five Federally Listed Threatened and Endangered Species

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ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Definition
ac	acres
af	acre-feet
AFA	<i>Aphanizomenon flos-aquae</i>
BA	biological assessment
BiOp	biological opinion
BOD	biological oxygen demand
°C	degrees Celsius
CDFG	California Department of Fish and Game (now CA Department of Fish and Wildlife)
CDFW	California Department of Fish and Wildlife
CEPA	California Environmental Protection Agency
cfs	cubic feet per second
cm	centimeters
CWT	coded wire tag
DO	dissolved oxygen
DPS	distinct population segment
EFH	essential fish habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
ET	evapotranspiration
EWA	environmental water account
°F	degrees Fahrenheit
FASTA	Flow Account Scheduling Technical Advisory
FERC	Federal Energy Regulatory Commission
FES	fish evaluation station
FR	Federal Register
ft	feet
ha	hectares
HUC	hydrological unit area
Ich	<i>Ichthyophthirius</i>
IGD	Iron Gate Dam
IGH	Iron Gate Hatchery
IP-km	intrinsic potential-kilometer
in	inches
kaf	1,000 acre-feet
KBPM	Klamath Basin Planning Model
KBRA	Klamath Basin Restoration Agreement
Kg	kilogram
KBRT	Klamath Basin Rangeland Trust
KHP	Klamath Hydroelectric Project
KHSA	Klamath Hydroelectric Settlement Agreement

Abbreviation/Acronym	Definition
KLS	Klamath largescale suckers
km	kilometers
LRS	Lost River sucker
m	meters
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MDN	marine-derived nutrients
mi	miles
mg	milligrams
mg/L	milligrams per liter
mm	millimeters
mtDNA	mitochondrial DNA
NCRWQCB	North Coast Regional Water Quality Control Board
NMFS	National Marine Fisheries Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NWR	National Wildlife Refuge
O&M	operation and maintenance
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
PCE	primary constituent elements
PFMC	Pacific Fishery Management Council
PIT	passive integrated transponder
POR	period of record
Project	Klamath Project
proposed action	proposed operation of the Klamath Project from May 31 2013 through March 31, 2023
Reclamation	Bureau of Reclamation
RM	river miles
RPA	reasonable and prudent alternative
RPM	reasonable and prudent measure
Services	U.S. Fish and Wildlife Service and National Marine Fisheries Service
SNS	shortnose sucker
SONCC	Southern Oregon/Northern California Coast
T&C	Terms and Conditions
TMDL	total maximum daily load
UKL	Upper Klamath Lake
USBR	U.S. Bureau of Reclamation
USDOI	U.S. Department of Interior
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VSP	viable salmonid population

Abbreviation/Acronym	Definition
YTEP	Yurok Tribal Environmental Program
WDFW	Washington Department of Fish and Wildlife
WRIMS	Water Resource Integrated Modeling System
WUA	weighted usable area
Yr	year

1 INTRODUCTION

This document transmits the concurrence determinations and biological opinions (BiOp) of the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS; collectively, the “Services” or “we”), based on our review of the proposed operations of the Klamath Project (Project) by the Bureau of Reclamation (Reclamation) in Klamath County in Oregon and Siskiyou and Modoc Counties in California. Table 1.1 displays the Federally-listed species (hereafter referred to as listed species) and critical habitats considered in this document.

This document was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. § 1531 et seq.). Reclamation’s request for formal consultation was received by the USFWS and the NMFS on December 3, 2012.

Table 1.1. Listed species and critical habitats considered in this document.

Scientific name	Common name	Listing	Critical habitat
<i>Chasmistes brevirostris</i>	shortnose sucker (SNS)	Endangered	Yes
<i>Deltistes luxatus</i>	Lost River sucker (LRS)	Endangered	Yes
<i>Acipenser medirostris</i>	Southern Distinct Population Segment (DPS) green sturgeon	Threatened	No
<i>Oncorhynchus kisutch</i>	Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU)	Threatened	Yes
<i>Thaleichthys pacificus</i>	Southern DPS eulachon	Threatened	Yes

This BiOp and the concurrence determinations are based on information provided in Reclamation’s Final Biological Assessment (BA; Reclamation 2012) and other sources of information. A complete record of this consultation is on file at the NMFS Northern California office in Arcata, California, and at the USFWS office in Klamath Falls, Oregon.

2 BACKGROUND AND CONSULTATION HISTORY

2.1 Background

The Klamath Basin’s hydrologic system currently consists of a complex of interconnected rivers, canals, lakes, marshes, dams, diversions, wildlife refuges, and wilderness areas. Alterations to the natural hydrologic system began in the late 1800s and expanded in the early 1900s, including water diversions by private water users, Reclamation’s Project, and several hydroelectric dams operated by a private company, currently known as PacifiCorp. PacifiCorp’s Klamath Hydroelectric Project (KHP) was constructed between 1911 and 1962, and includes eight developments: (1) East and (2) West Side power facilities at Link River Dam; (3) Keno Dam; (4) J.C. Boyle Dam; (5) Copco 1 Dam; (6) Copco 2 Dam; (7) Fall Creek Dam; and (8) Iron Gate Dam (IGD). The Link River Dam and Upper Klamath Lake (UKL) are not part of the KHP. PacifiCorp operated the KHP under a 50-year license issued by the Federal Energy Regulatory Commission (FERC) until the license expired in 2006. PacifiCorp continues to operate the KHP under annual licenses based on the terms of the previous license.

In 2001, the Services issued BiOps on the effects of Reclamation's Project operations on listed species, and concluded that the proposed Project operations would likely jeopardize the continued existence of the Lost River sucker (LRS) and the shortnose sucker (SNS) in UKL (USFWS 2001) and the Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU) (NMFS 2001a). Because of a severe drought in 2001 and the jeopardy BiOps, Reclamation limited the volume of water delivered to Project agricultural users, and to the Lower Klamath and Tule Lake National Wildlife Refuges.

In early 2002, the National Research Council (NRC) concluded that "all components of the BiOp issued by the USFWS on the endangered suckers have substantial scientific support except for the recommendations concerning minimum water levels for Upper Klamath Lake." The NRC (2002a) "found a sound scientific basis for recommendations in the NMFS 2001 BiOp involving coordination of operations and reduction of ramping rates for flows below the mainstem dams." However, the NRC found little scientific support for minimum mainstem flows to maintain and recover coho salmon populations. Nevertheless, the NRC did not conclude that NMFS must be wrong in its recommendations on mainstem flows that were included in the NMFS 2001 BiOp as a reasonable and prudent alternative (RPA; NRC 2002b). The NRC (2002a, 2004) also noted that Reclamation's proposed lake and river flows, which would have caused lower mean lake levels or lower minimum river flows, lacked scientific justification.

In March 2002, one month after the NRC issued its Interim Report (NRC 2002a), Reclamation finalized a new BA that covered Project operations from May 31, 2002, to March 31, 2012, and requested consultation with the NMFS and the USFWS. The USFWS issued a BiOp (finalized in May 2002) that Reclamation's implementation of this new proposal was likely to jeopardize the continued existence of the LRS and the SNS, and provided an RPA that involved application of an adaptive management approach that still allowed for Project water deliveries. NMFS finalized a BiOp on May 31, 2002, and concluded that Reclamation's proposed operations would likely jeopardize the continued existence of the SONCC coho salmon and would likely adversely modify critical habitat of SONCC coho salmon. In coordination with Reclamation, the NMFS' BiOp also included a RPA that consisted of Reclamation operating the Project to ensure that IGD minimum flows increased gradually over three phases during the 10-year period of the plan for Project operations, among other additional requirements. Reclamation provided full water deliveries to irrigators in 2002 despite the continued drought.

In September 2002, at least 33,000 adult salmonids died in the lowermost 40 miles of the mainstem Klamath River (CDFG 2004a, Guillen 2003, NRC 2004, Yurok Tribal Fisheries Program 2004). The fish kill was unprecedented and affected primarily Chinook salmon, although coho salmon (approximately 344), steelhead, and green sturgeon also died. The immediate cause of mortality was massive infections of *Ichthyophthirius multifiliis* (ich) and the bacterial pathogen *Flavobacter columnare* (columnaris; CDFG 2003, Guillen 2004a, NRC 2004, Yurok Tribal Fisheries Program 2004).

Several fisheries groups, environmental organizations, and tribes filed suit against Reclamation and the NMFS in Federal district court, alleging violations of the ESA. The district court overturned a significant aspect of the RPA, finding the requirement that Reclamation provide only 57 percent of the long-term flows to be arbitrary and capricious. The issue on appeal was the district court's determination that Phases I and II of the RPA, or the short term measures,

were not arbitrary and capricious. The Ninth Circuit Court of Appeals concluded that the RPA was arbitrary and capricious, because NMFS did not analyze how implementation of the short-term measures of the RPA, for 8 of 10 years of the plan for Project operations, would avoid the likelihood of jeopardy to coho salmon. The Ninth Circuit Court of Appeals remanded the case to the district court for appropriate injunctive relief.¹ On remand, the district court granted a motion for injunctive relief and ordered: (1) NMFS and Reclamation to reinitiate consultation on the Klamath Irrigation Project; (2) NMFS to issue a new BiOp based on the current scientific evidence and the full risks to threatened coho salmon; and (3) Reclamation to limit Project irrigation deliveries if they would cause flows in the Klamath River at and below IGD to fall below 100 percent of the Phase III flow levels specifically identified by NMFS in its 2002 BiOp as necessary to prevent jeopardy (i.e., Table 9 in the 2002 BiOp), until the new consultation for the Klamath Irrigation Project was completed.²

In 2007, Reclamation reinitiated consultation with the NMFS and the USFWS on its ongoing operations of the Project. Reclamation proposed to change its ongoing activities to address concerns with monthly time-step management of downstream flows and UKL elevations. Reclamation also sought to address the court order, which dictated that Reclamation must meet Phase III flow levels in the RPA of the NMFS' 2002 BiOp for Reclamation's Project operations until a new BiOp was developed. The USFWS completed a non-jeopardy BiOp on the Project for the LRS and the SNS in April 2007. The NMFS issued a draft jeopardy BiOp on the Project for the SONCC coho salmon ESU in June 2008. On October 6, 2008, Reclamation requested that the NMFS suspend the finalization of the consultation until further notice. On March 4, 2010, Reclamation requested that the NMFS finalize its BiOp on the Project. On March 18, 2010, NMFS released its BiOp (NMFS 2010a) on Reclamation's Project operations from 2010–2018, and concluded that Reclamation's proposed operations would likely jeopardize the continued existence of SONCC coho salmon and would likely destroy or adversely modify SONCC coho salmon designated critical habitat; the BiOp also included a RPA.

2.1.1 Oregon Water Rights Adjudication

This proposed action was developed beginning in 2011 and finalized in December 2012. On March 7, 2013, the Oregon Water Resources Department delivered the Findings of Fact and an Order of Determination in the Klamath River Basin Adjudication regarding water rights in the Klamath Basin (within the state of Oregon) to the Klamath County Circuit Court. Adjudication-related proceedings in the Oregon portion of the Klamath Basin have been conducted since 1975, and the completion date was unknown as the proposed action was developed. Because the Findings of Fact and Order of Determination were unknown as the proposed action was developed, or even when the Oregon Water Resources Department might complete the Findings of Fact and Order of Determination, the proposed action does not anticipate or account for the

¹ *Pacific Coast Federation of Fishermen's Associations v. U.S. Bureau of Reclamation*, 426 F.3d 1082 (9th Cir. 2005).

² *Pacific Coast Federation of Fishermen's Associations v. U.S. Bureau of Reclamation*, 2006 WL 798920 (N.D. Cal. 2006), *amended on reconsideration*, 2006 WL 1469390 (N.D. Cal. 2006), *affirmed*, 226 Fed. Appx. 715, 2007 WL 901580 (9th Cir. 2007).

Findings of Fact and Order of Determination. The potential effects of the Findings of Fact and Order of Determination on management of water in the Klamath Basin, including the Reclamation's Project operations, are uncertain at present and will likely remain uncertain for several years. Therefore, the proposed action is not modified based on the Findings of Fact and Order of Determination. In the future, when the consequences of the adjudication are understood, the proposed action will be modified if necessary in accordance with parties' legal rights to beneficial use of water.

2.2 History of Consultation

This joint BiOp is the culmination of a multi-year collaborative effort among Reclamation, the USFWS, and the NMFS to develop a new proposed action for ongoing operations of the Project. The need to reconsult was identified in 2010 when the issuance of the NMFS's 2010 jeopardy BiOp with a RPA combined with Project water use resulted in UKL levels that were lower than analyzed by the USFWS in its 2008 BiOp on the Project. Reclamation and the Services agreed that under certain hydrologic conditions, Reclamation was unable to meet the water needs of the Project and the Services' BiOps, resulting in conflicting requirements that were difficult for Reclamation to meet with actions under its discretion. Because there was a need to have coordinated BiOps for the Project, the USFWS Pacific Southwest Regional Director, the NMFS Southwest Regional Administrator and Reclamation's Mid Pacific Regional Director met in November 2010 with their respective field office managers and directed them to develop a new proposed action and joint BiOp. The goal of this directive was to ensure the development of a workable proposed action and a joint BiOp that would allow Reclamation to continue to operate the Project to store, divert, and convey water to meet authorized Project purposes and contractual obligations in compliance with applicable State and Federal law while meeting the conservation needs of affected listed species in a coordinated manner.

A team of Federal resource managers was convened in early 2011 to establish an Agency Coordination Team. The Agency Coordination Team consists of hydrologists, biologists, managers from each agency, and support staff. The team met on over 25 occasions (see Table 2.1) and created a new paradigm and decision-making process for managing Reclamation's Project in a manner that provides more certainty for Project water users, UKL elevations, and Klamath River flows than in the past.

Table 2.1 Chronology of Agency Coordination Team meetings for development of Reclamation's proposed action.

Date	City	State
May 10, 2011	Redding	CA
June 2-3, 2011	Medford	OR
June 22-23, 2011	Arcata	CA
July 19-20, 2011	Klamath Falls	CA
August 15, 2011	Teleconference	
September 13-14, 2011	Ashland	OR
October 4, 2011	Klamath Falls	OR
October 18, 2011	Teleconference	
November 8-9, 2011	Arcata	CA
December 6-7, 2011	Redding	CA
January 10-11, 2012	Redding	CA
February 9-10, 2012	Redding	CA
February 17, 2012	Teleconference	
February 28, 2012	Teleconference	
March 14, 2012	Ashland	OR
April 3, 2012	Teleconference	
April 17, 2012	Teleconference	
April 26-27, 2012	Medford	OR
May 3-4, 2012	Teleconference	
May 16-18, 2012	Medford	OR
June 4, 2012	Teleconference	
June 7, 2012	Teleconference	
June 19-20, 2012	Klamath Falls	OR
July 24-25, 2012	Teleconference	
August 9, 2012	Teleconference	
September 21, 2012	Teleconference	

On December 1, 2012, Reclamation sent letters requesting initiation of formal consultation pursuant to section 7(a)(2) of the ESA. The Services received Reclamation's request and accompanying BA on December 3, 2012. NMFS also received Reclamation's December 21, 2012, letter clarifying the proposed minimum daily average target flows and the inclusion of a coho salmon conservation measure as part of the proposed action. The USFWS received Reclamation's January 4, 2013, letter revising the effects determination on critical habitat for Lost River sucker and shortnose sucker, and addressing other minor points of clarification. On January 8, 2013, a letter of sufficiency of the BA was sent to Reclamation from the Services.

In Section 4.3.3.5 on page 4-45 of the final BA (Reclamation 2012), Reclamation included as part of the proposed action information on mowing roads and dikes and the use of pesticides and herbicides on Project lands. The BA states the effects of these activities have been evaluated in previous ESA section 7 consultations (1-7-95-F-26 and 1-10-07-F-0056), and there are no

proposed changes to the vegetation and pest management activities as currently practiced. On February 8, 2013, Reclamation clarified via email that the information on pesticide use as noted in Section 4.3.3.5 was included in the BA to respond to USFWS's request to provide a complete Baseline of Project operation, and Reclamation is not requesting consultation on pesticide use as part of their request for formal consultation.

Additionally, as part of their proposed action in the final BA, Reclamation included a statement that in dry years when the Project Supply is limited, it may not be possible to maintain the proposed minimum Tule Lake Sump 1A elevations because of decreased runoff and drainage from Project land. Reclamation stated in the first paragraph on page 4-38 of the BA (Reclamation 2012) that this situation is outside of their control, and Tule Lake elevations may decline to levels less than the proposed minimums and sucker relocation may be necessary. However, after finalizing the BA, Reclamation conducted further analysis on the likelihood of not meeting minimum elevations in Tule Lake. On April 9, 2013, Reclamation provided this analysis to the USFWS via email, concluding that if the Klamath Project received irrigation deliveries, the likelihood of not maintaining minimum surface elevation in Tule Lake Sump 1A was very rare. Therefore, Reclamation requested via email on April 25, 2013, that the paragraph on page 4-38 and associated Appendix 4B be removed from the proposed action and not analyzed.

On May 3, 2013, USFWS received Reclamation's letter, clarifying and updating the proposed action with additional Conservation Measures. These measures included providing an additional \$500,000 in FY2013 to support captive propagation; capturing and transporting listed suckers in Lake Ewauna and releasing them in UKL; and investigating the reduction of flows at Link River Dam to determine if there are feasible management options to minimize effects of entrainment at Link River Dam on larvae and juvenile listed suckers at key times when they are present at the south end of UKL.

On May 7, 2013, Reclamation and NMFS met in Medford, OR to discuss several issues NMFS needed to be addressed prior to issuance of the anticipated, joint BiOps on Reclamation's proposed action. The issues involved the minimum flows during the spring, magnitude and frequency of high flow events, and the restoration funding.

On May 10, 2013, NMFS received Reclamation's May 9, 2013, letter documenting the mutual agreement between NMFS and Reclamation to extend the consultation on the endangered southern resident killer whale DPS (*Orcinus orca*) for one year.

On May 29, 2013, NMFS received Reclamation's letter revising the proposed action to further minimize adverse effects of the Project on the SONCC coho salmon ESU and its critical habitat. The revised proposed action consists of: (1) increasing the minimum daily IGD flow targets for April, May, and June; (2) clarifying flexibility in operations regarding meeting minimum daily average flows downstream of IGD; (3) clarifying that the proposed action daily modeled IGD flows during high flow events will be achieved during real-time operations; (4) increasing annual fisheries habitat restoration funding to \$500,000; and (5) using adaptive management for minimizing fish disease.

3 ACTION AREA

The action area includes “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 C.F.R. § 402.02).

For purposes of the USFWS’s BiOp, the action area includes UKL in south central Oregon, and Gerber Reservoir and Clear Lake in the Lost River drainage of southern Oregon and northern California downstream to IGD (Figure 3.1). Please note that Clear Lake and Clear Lake Reservoir are the same water-body and the names are used interchangeably throughout this document. Within the Upper Klamath Basin, the action area includes Agency Lake, UKL and its tributaries, Keno Reservoir (also called Lake Ewauna), the Lost River including Miller Creek, and all Reclamation-owned facilities including reservoirs, diversion channels and dams, canals, laterals, and drains, including those within Tule Lake and Lower Klamath National Wildlife Refuges (Figure 3.2). The UKL tributaries are included in the action area because the conservation measures for listed suckers are likely to occur in these tributaries, not because the Project operations affect these species or their habitat within the tributaries.

For the NMFS, the action area includes the mainstem Klamath River from IGD at River Mile (RM) 190 to the Klamath River mouth, as well as tributaries between IGD and the Salmon River. The Klamath River tributaries are part of the action area because one of the proposed conservation measures focuses on providing benefits to coho salmon populations within these tributaries.

LRS and SNS population resiliency or redundancy because of the low prevalence of adequate rearing habitat occurring in Keno Reservoir, more favorable rearing habitats occurring outside of Keno Reservoir, and the *Conservation Measures* proposed by Reclamation will compensate for the adverse effects on the PCEs via relocation of adult suckers from Keno Reservoir (also known as Lake Ewauna) to UKL and the production of juvenile suckers by the proposed controlled-propagation program.

We conclude that Unit 2 of critical habitat is supporting the recovery role for the LRS and SNS. In Unit 2, there is no affect to water quality (PCE 1), spawning habitat (a component of PCE2), and food availability (PCE 3) from proposed Project operation in Clear Lake. The proposed action is likely to adversely affect rearing habitat during droughts that are likely to occur once during the term of this BiOp. However, the effect is unlikely to impede the recovery-support function of critical habitat for the LRS and SNS in Clear Lake. In Gerber Reservoir, there are no adverse effects to PCEs of critical habitat as a result of the implementation of the proposed action. This proposed action is a continuation of past actions and the SNS population (the only listed sucker species in the reservoir) has shown evidence of frequent recruitment. Therefore, we assume critical habitat in Gerber Reservoir is supporting the recovery role for SNS.

In summary, the recovery-support function of critical habitat for LRS and SNS is anticipated to be most impacted by operations at Keno Reservoir through actions affecting PCEs 1 and 2. While these impacts are adverse they are temporary, rather than permanent, and the Conservation Measures proposed by Reclamation compensate for the impacts to the recovery role of critical habitat in Unit1. Critical habitat range-wide remains functional in most years and serves its intended recovery role of population resiliency and redundancy for these two species. Based on the information provided in this analysis, designated critical habitat is expected to continue to provide the recovery-support function of critical habitat for LRS and SNS at the scale of designated critical habitat, which is coincident with the range of LRS and SNS. Therefore, we do not anticipate that effects of the proposed action, taking into account cumulative effects, will result in the destruction or adverse modification of LRS and SNS critical habitat. We believe that the proposed action will not alter the essential physical or biological features to an extent that appreciably reduces the conservation value of critical habitat range-wide for LRS and SNS.

11 SONCC COHO SALMON CRITICAL HABITAT

NMFS has determined that the proposed action may adversely affect SONCC coho salmon critical habitat (64 FR 24049; May 5, 1999). Therefore, this BiOp analyzes the effects of the proposed action on SONCC coho salmon critical habitat using the following analytical approach.

11.1 Analytical Approach

Pursuant to section 7(a)(2) of the ESA, Federal agencies are directed to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. Below, NMFS outlines the conceptual framework and key steps and assumptions used in the critical habitat destruction or adverse modification analysis.

11.1.1 Overview of NMFS' Assessment Framework

NMFS' "destruction or adverse modification" determinations are based on an action's effects on the conservation value of habitat that has been designated as critical to threatened or endangered species³. If an area encompassed in a critical habitat designation is likely to be exposed to the direct or indirect consequences of the proposed action on the natural environment, NMFS assesses if Primary Constituent Elements (PCEs; i.e., the principal biological or physical constituent elements within the designated area that are essential to the conservation of listed species) or essential features (i.e., those physical and biological features that are essential to the conservation of a given species and that may require special management considerations or protection) included in the designation are likely to be affected by that exposure.

In this step of the assessment, NMFS must identify: (a) the spatial distribution of stressors and benefits produced by an action; (b) the temporal distribution of stressors and subsidies produced by an action; (c) changes in the spatial distribution of the stressors with time; (d) the intensity of stressors in space and time; (e) the spatial distribution of PCEs or essential features of designated critical habitat; and (f) the temporal distribution of PCEs or essential features of designated critical habitat.

If PCEs or essential features of designated critical habitat are likely to respond given exposure to the direct or indirect consequences of the proposed action, interrelated or interdependent actions, or both, NMFS assesses if those responses are likely to reduce the quantity, quality, or availability of those PCEs or essential features within the action area. The action area is organized by reaches within the mainstem Klamath River, the area encompassing the diversity

³ Several courts have ruled that the definition of destruction or adverse modification that appears in the ESA section 7 implementing regulations at 50 CFR 402.02 is invalid [e.g., *Gifford Pinchot Task Force v. USFWS*, 378 F.3d 1059 (9th Cir. 2004), amended by 387 F.3d 968 (9th Cir. 2004)], and NMFS does not rely on the invalidated definition for the determinations NMFS makes in this BiOp. Instead, NMFS relied on the statutory provisions of the ESA to complete the following analysis with respect to critical habitat. As explain in the text, NMFS uses the "conservation value" of critical habitat for our determinations which focuses on the designated area's ability to contribute to the conservation of the species for which the area was designated.

stratum⁴ (Interior Klamath) in which the affected PCEs or essential features are found, and then the overall designated area of critical habitat at the ESU scale. The basis of the analysis is to evaluate any appreciable reduction to the function and role of the critical habitat in the conservation of the species.

In this step of the assessment, NMFS identifies or makes assumptions about (a) the habitat's probable condition as the point of reference; (b) the ecology of the habitat at the time of exposure; (c) where the exposure is likely to occur; (d) when the exposure is likely to occur; (e) the expected intensity of exposure; (f) the likely duration of exposure; and (g) the frequency of exposure. NMFS recognizes that the conservation value of critical habitat, like the base condition of individuals and populations, is a dynamic property that changes over time in response to the environment (e.g., changes in land use patterns, climate (at several spatial scales), ecological processes, and changes in the dynamics of biotic components of the habitat). For these reasons, some areas of critical habitat in the action area might respond to an exposure when others do not. NMFS also considers how designated critical habitat is likely to respond to any interactions and synergisms between or aggregate effects of pre-existing stressors and anticipated project-related stressors.

As with the outline of the summary approach to how NMFS analyzes the effects from the proposed action on individuals, NMFS performs the following steps to help determine effects from the proposed action on designated critical habitat:

- Determine the critical habitat likely to be exposed to project-related stressors,
- Determine the area or features of critical habitat that could be affected by the proposed project,
- Determine which PCEs or essential features could be affected by project-related stressors,
- Estimate the stressor(s) frequency, intensity, and duration of exposure to critical habitat,
- Determine if there will be interactions between existing stressors and project stressors on critical habitat,
- Determine short-term responses of critical habitat to project-related stressors,
- Determine long-term responses of critical habitat to project-related stressors,
- Determine if the stressor and exposure scenarios anticipated are expected to result in an appreciable reduction in the quantity, quality, or function of critical habitat in the action area

If the quantity, quality, or availability of the PCEs or essential features of the area of designated critical habitat are reduced, NMFS evaluates if those reductions are likely to be sufficient to reduce the current conservation value of the designated critical habitat for listed species in the action area. In this step of the assessment, NMFS combines information about the contribution of PCEs or essential features of critical habitat to the conservation value of those areas of critical habitat that occur in the action area, given the physical, chemical, biotic, and ecological processes that produce and maintain those PCEs or essential features in the action area. NMFS

⁴ In cases where the extent of designated critical habitat is smaller than the boundaries of a defined area such as a diversity stratum, our analysis would focus on the extent of the designation within that area and not artificially extend critical habitat boundaries.

uses the *conservation value* of those areas of designated critical habitat that occur in the action area as the point of reference for this comparison. For example, if the critical habitat in the action area has limited current value or potential value for the conservation of listed species, then that limited value is the point of reference for the assessment.

If the conservation value of designated critical habitat in an action area is reduced due to the proposed action, the final step of the analysis assesses if those reductions are likely to be sufficient to reduce the overall conservation value of the entire designated critical habitat. In this step of the assessment, NMFS combines information about the PCEs or essential features of critical habitat that are likely to experience changes in quantity, quality, and availability given exposure to an action. NMFS uses the conservation value of the entire designated critical habitat as the point of reference for this comparison. For example, if the designated critical habitat has limited current value or potential value for the conservation of listed species that limited value is the point of reference for the assessment.

If the proposed action results in reductions in the quantity, quality, or availability of one or more essential features or PCEs, which in turn reduces the conservation value of the designated areas in the action area, which in turn reduces the function of the overall critical habitat designation in its relation to conservation of the species, then NMFS will conclude that the proposed action is likely to result in an adverse modification or destruction of critical habitat. In the strictest interpretation, reductions to any one essential feature or PCE would equate to a reduction in the value of the critical habitat in the action area. However, there are other considerations. NMFS looks to various factors to determine if the reduction in the value of an essential feature or PCE would affect the ability of critical habitat to provide for the conservation of the species.

11.1.2 Concept of the Natural Flow Regime

Throughout the BiOp, NMFS used the concepts of a natural flow regime (Poff et al. 1997) to guide its analytical approach. The natural flow regime of a river is the characteristic pattern of flow quantity, timing, rate of change of hydrologic conditions, and variability across time scales (hours to multiple years), all without the influence of human activities (Poff et al. 1997). Variability of the natural flow regime is inherently critical to ecosystem function and native biodiversity (Poff et al. 1997; Puckridge et al. 1998; Bunn and Arthington 2002; Beechie et al. 2006). Arthington et al. (2006) stated that simplistic, static, environmental flow rules are misguided and will ultimately contribute to further degradation of river ecosystems. Flow variability is an important component of river ecosystems which can promote the overall health and vitality of both rivers and the aquatic organisms that inhabit them (Poff et al. 1997; Puckridge et al. 1998; Bunn and Arthington 2002; Arthington et al. 2006). Variable flows trigger longitudinal dispersal of migratory aquatic organisms and other large events allow access to otherwise disconnected floodplain habitats (Bunn and Arthington 2002), which can increase the growth and survival of juvenile salmon (Jeffres et al. 2008).

A universal feature of the hydrographs of the Klamath River and its tributaries is a spring pulse in flow followed by recession to a base flow condition by late summer (NRC 2004). This main feature of the hydrograph has undoubtedly influenced the adaptations of native organisms, as reflected in the timing of their key life-history features (NRC 2004). Life history diversity of

Pacific salmonids *Oncorhynchus spp.* substantially contributes to their persistence, and conservation of such diversity is a critical element of recovery efforts (Beechie et al. 2006). The findings of Waples et al. (2001) support the conclusion of Beechie et al. (2006) because they found life history and genetic diversity showed a strong, positive correlation with the extent of ecological diversity experienced by a species. The analysis by Williams et al. (2006) suggested that substantial environmental variability (e.g. wet coastal areas and arid inland regions) within the Klamath River Basin resulted in nine separate populations of coho salmon (see Status of the Species). Because aquatic species have evolved life history strategies in direct response to natural flow regimes (Taylor 1991; Waples et al. 2001; Beechie et al. 2006), maintenance of natural flow regime patterns is essential to the viability of populations of many riverine species (Poff et al. 1997; Bunn and Arthington 2002).

Understanding the link between the adaptation of aquatic and riparian species to the flow regime of a river is crucial for the effective management and restoration of running water ecosystems (Beechie et al. 2006), because humans have now altered the flow regimes of most rivers (Poff et al. 1997; Bunn and Arthington 2002). When flow regimes are altered and simplified, the diversity of life history strategies of coho salmon are likely to be reduced because life history and genetic diversity have a strong, positive correlation with the extent of ecological diversity experienced by a species (Waples et al. 2001). Any reductions in salmonid life history diversity are likely to have implications for their persistence (Beechie et al. 2006).

11.1.3 Flow and Rearing Habitat Analysis

NMFS used the relationships of flow and habitat formulated by Hardy (2012) and Hardy et al. (2006) to quantify how coho salmon fry and juvenile habitats vary with water discharge in the mainstem Klamath River below IGD. The flow-habitat relationships provided by Hardy et al. (2006) and Hardy (2012) represent the best available data on flow-habitat relationship in the Klamath River. NMFS is not aware of any other studies that quantify the relationship between discharge and habitat in the Klamath River mainstem.

Hardy et al. (2006) developed habitat suitability criteria for life history stages of anadromous salmonids in the regulated mainstem Klamath River based on the fundamental concepts of the ecological niche theory. The 2006 report defines an ecological niche as “the set of environmental conditions (e.g., temperature, depth, velocity) and resources (things that are consumed such as food) that are required by a species to exist and persist in a given location.” Species and life stage specific habitat suitability criteria used in instream flow determinations are an attempt to measure the important niche dimensions of a particular species and life stage (Gore and Nestler 1988). These criteria are then used to measure niche changes relative to changes in flow.

Empirical data on juvenile coho salmon in the mainstem Klamath River are limited. While juvenile outmigration monitoring (e.g., downstream migrant traps) provides information on distribution and emigration timing on the mainstem Klamath River, there are few observations of juvenile coho salmon utilizing micro-habitat. Consequently, Hardy et al. (2006) developed literature-based habitat suitability criteria to quantify habitat availability for juvenile coho salmon within the mainstem Klamath River. Habitat suitability criteria were validated using the

limited empirical observations of coho salmon fry and parr in the mainstem Klamath River (Hardy et al. 2006).

Using simulated hydrodynamic variables at intensive study sites, Hardy developed composite suitability indices for each site from the habitat suitability criteria data, which incorporated species and life-stage specific preferences with regard to specific microhabitat features, such as flow, depth, velocity, substrate, and cover characteristics. The composite suitability indices were later converted into a combined measure known as the weighted usable area (WUA) to characterize the quality and quantity of habitat in terms of usable area per 1,000 linear feet of stream (NRC 2008). Hardy et al. (2006) then scaled up WUA results from the individual sites to the larger reach-level scale (see Hardy et al. 2006 or NRC 2008 for further discussion). WUA is a measure of habitat suitability, predicting how likely a habitat patch is to be occupied or avoided by a species life stage at a given time, place, and discharge (i.e., the suitability of the habitat for a specific species and life-stage of fish; NRC 2008).

NMFS uses reach-level WUA curves to gauge the general change in instream habitat availability (incorporating both quantity and quality) within the mainstem Klamath River resulting from the proposed action, and characterizes the change as a difference in suitable habitat volume. NMFS uses WUA curves from reach-level study sites for the Upper Klamath and Middle Klamath River reach effects analyses (Table 11.1).

Table 11.1. Hardy et al. (2006) and Hardy (2012) reach-level study sites used by NMFS for analysis.

Klamath River Reach	Coho Salmon Fry	Coho Salmon Juvenile*
Upper Klamath River Reach	IGD to Shasta River	Trees of Heaven
	Shasta to Scott rivers	
	Parts of Scott to Salmon rivers	Seiad Valley
Middle Klamath River Reach	Parts of Scott to Salmon rivers	Rogers Creek
*While Hardy et al. (2006) developed WUA curves for coho salmon juveniles at seven reaches in the Klamath River, NMFS uses only the Trees of Heaven, Seiad Valley, and Rogers Creek reaches because these reaches have relatively high habitat availability and are most influenced by the proposed action (i.e., closest to IGD).		

Unlike the previous BiOp (NMFS 2010a), Reclamation did not model a No-Project flow scenario. The No-Project hydrology was used to describe a reference condition of a hydrological setting with all aspects of the baseline other than Reclamation's discretionary actions, thereby providing the Services with a reference condition to evaluate the effects of Reclamation's proposed action on UKL elevations and Klamath River flows below IGD. A No-Project flow scenario for the Klamath River is dependent upon a number of critical assumptions (e.g., designating the UKL outflow elevation, Refuge deliveries, Lost River diversions to and from the Klamath River, and other water routing assumptions that influence the magnitude, timing and duration of flows in the Klamath River). While anthropogenic factors influencing water availability and routing outside of Reclamation's discretion remain in a No-Project flow

scenario, actions and elements of the baseline within Reclamation's discretion are removed from the hydrological setting under a No-Project scenario.

In 2007, Reclamation provided NMFS and USFWS a No-Project hydrology that included critical assumptions given a hypothetical scenario in which Reclamation would no longer deliver water to the Klamath Project. Key assumptions included: (1) UKL will be a level pool and not affected by wind; and (2) the reef at Link River dam would be reconstructed, recreating the original reef elevation stage-discharge relationship (NMFS 2010a).

Prior to completing Reclamation's 2012 BA, the Services and Reclamation discussed the potential of developing a No-Project hydrology for this consultation. NMFS, USFWS, and Reclamation mutually agreed, during informal consultation, that developing a No-Project hydrology for the purpose of analyzing the effects of Reclamation's proposed action on listed species was not prudent because the agencies were not able to find consensus on approaches to address critical assumptions necessary to define a No-Project condition. Concerns with the above-described assumptions, combined with the Services' determination that their analytical approach was not dependent on a No-Project hydrology led Reclamation to not model a No-Project hydrology. NMFS determined on January 8, 2013, it had sufficient information to initiate formal consultation based on the biological assessment, and NMFS and USFWS have since proceeded with formal consultation and drafting the joint BiOps based on the biological assessment and critical assumptions described in this BiOp.

On April 8, 2013, the Hoopa Valley Tribe submitted to NMFS, model output from a No-Project hydrological scenario and associated flow/habitat relationship data, analyzing habitat availability under a No-Project hydrology. NMFS has not had sufficient resources to do more than a cursory evaluation of the model structure and assumptions supporting the No-Project hydrological scenario, nor has it had sufficient resources to evaluate it with USFWS and Reclamation, while also proceeding with drafting the BiOp as required under the ESA and implementing regulations.

While NMFS is appreciative of the Tribe's efforts to advance our understanding of the effects of the Proposed Action, NMFS has identified some potential problems with the model structure and assumptions in NMFS' cursory review of it, and NMFS is cautious of using hydrological data in which the critical assumptions of water routing have not been evaluated by Reclamation, USFWS, and NMFS. However, NMFS will further evaluate the No-Project hydrological scenario in coordination with Reclamation and USFWS to determine whether it is a reasonable representation of no-project flows and reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered. If so, reinitiation of formal consultation will be required under 50 CFR 402.16.

Therefore, NMFS does not use a modeled No-Project flow to quantitatively compare the flow effects of the proposed action for this consultation. However, NMFS can reasonably assume the proposed action reduces mainstem flow volume in the Klamath River throughout most of the year because the Project diverts water during the spring and summer (and fall and winter to a lesser degree) and stores water in UKL in the fall and winter. Using Hardy's (2012) coho salmon fry and Hardy et al.'s (2006) juvenile data, NMFS identified the range of flows for the mainstem reaches downstream of IGD where there is a positive correlation between flow and

habitat availability. In those flow ranges, when flows increase, habitat availability increases. Conversely, when flows decrease, habitat availability decreases in those flow ranges. Therefore, when the proposed action reduces mainstem flows within those ranges, the proposed action reduces habitat availability.

Like the previous BiOp (NMFS 2010a), NMFS assumes at least 80 percent of maximum available habitat provides for the conservation needs of coho salmon, and excludes flows that provide at least 80 percent of maximum available habitat from the analysis. NMFS then highlights the time periods and flow exceedances when the proposed action will reduce habitat availability below 80 percent of maximum available habitat for each reach. Instream maximum available habitat of 80 percent has been used to develop minimum flow needs for the conservation of anadromous salmonids (Sale et al. 1981 *in* Clipperton et al. 2002, NMFS 2002, Alberta Environment and Department of Fisheries and Oceans Canada 2007, Hetrick et al. 2009). Therefore, NMFS assumes that at least 80 percent of maximum available habitat provides a wide range of conditions and habitat abundance in which populations can grow and recover. Where habitat availability is 80 percent or greater under the proposed action, habitat is not expected to limit individual fitness or population productivity or distribution nor adversely affect the function of essential features of coho salmon critical habitat.

NMFS is aware of the limitations of focusing solely on WUA analysis when analyzing an individual coho salmon or coho population's response to an action (e.g., NRC 2008). For example, whether or not individuals actually occupy suitable habitat is dependent on a number of factors that may preclude access, including connectivity to the location, competition with other individuals, and risks due to predation (Hardy et al. 2006). Like all models, the instream flow model developed by Hardy et al. (2006) is an imperfect representation of reality (NRC 2008), and uncertainty exists in the model. Thus, NMFS' analysis focuses on habitat availability, as well as other important components of the flow regime, like water quality, channel function, and hydrologic behavioral cues, and how they affect coho salmon individual fitness.

Hardy et al. (2006) discussed the concept of an ecological base flow for the Klamath River. The ecological base flow (also called environmental flow) represents the minimum flow where any further anthropogenic reductions would result in unacceptable levels of risk to the health of aquatic ecosystem (Tharme 2003, Arthington et al. 2006, Hardy et al. 2006, Beca 2008, Ohlson et al. 2010). Hardy et al. (2006) adopted an ecological base flow for the Klamath River that is equivalent to the monthly 95 percent exceedance level of their instream flow recommendations.

With regard to Hardy et al.'s (2006) instream flow recommendations, including the ecological base flow, for the mainstem Klamath River, NMFS notes the different objectives and standards for analyses in Hardy et al. (2006) and this BiOp. Specifically, Hardy et al. (2006) used a multi-species approach to develop flow recommendations for conserving the entire suite of anadromous salmonids inhabiting the Klamath River Basin. In contrast, NMFS must focus its jeopardy and critical habitat analyses upon the effects of the proposed action on listed species (i.e., SONCC coho salmon) and critical habitat designated for listed species. Nevertheless, Hardy et al.'s (2006) instream flow recommendations provide NMFS with a useful reference when analyzing expected flows under the proposed action. Hardy et al.'s (2006) instream flow recommendations were based on the natural flow paradigm that concludes effective instream

**BEFORE THE DIRECTOR
OF THE WATER RESOURCES DEPARTMENT
OF THE STATE OF OREGON**

KLAMATH RIVER BASIN GENERAL STREAM ADJUDICATION

In the Matter of the Determination of the)	
Relative Rights to the Use of the Waters)	
of Klamath River and its Tributaries)	CORRECTED FINDINGS OF FACT
_____)	AND ORDER OF DETERMINATION
_____)	

The Oregon Water Resources Department’s Adjudicator, acting on authority delegated by the Water Resources Director, having considered the record in the above-entitled proceeding, and having determined that the Klamath River Basin Adjudication (“Adjudication”) has proceeded in accordance with applicable law, as described below, hereby makes and orders to be entered of record in the Oregon Water Resources Department (“OWRD”) the following Findings of Fact and Order of Determination:

A. INTRODUCTION AND FINDINGS OF FACT

A-1. INTRODUCTION TO THE ADJUDICATION PROCESS

The Adjudication is a proceeding for the determination of surface water rights in the Klamath River Drainage Basin pursuant to Oregon Revised Statutes (“ORS”) Chapter 539.

The Adjudication involves the determination of water rights arising either from alleged use (or intent to use) initiated prior to the effective date of the Water Rights Code in 1909 (these claims are referred to herein as “pre-1909 claims”), or from the federal government’s authority to reserve the use of water as an element of a reservation of federal or tribal land (these claims are referred to broadly as “federal reserved water right claims;” they may also be referred to based on the sub-type of federal reserved water right claims to which they belong).¹ *See generally* ORS Chapter 539.

The Adjudication includes over 730 claims to water rights based on either pre-1909 or federal reserved water right theories. Over 5,600 contests to these claims were filed.

Oregon follows the “prior appropriation” doctrine, which addresses which water rights are honored in times of shortage. Robert E. Beck, *Prevalence and Definition, 2 Waters and Water Rights*, 83 (Robert E. Beck, ed 1991); Janet C. Neuman, *Oregon, 6 Waters and Water*

¹ Post-1909 rights that are not based on the federal government’s authority are determined through a permitting system under the Water Rights Code, ORS Chapter 537; they are not determined in the Adjudication.
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Rights (2d ed 1994). In times of water shortage, one possessing a senior water right has a right to obtain regulation in his or her favor by having the watermaster shut off (“regulate”) junior water users. ORS 540.045(1) (watermasters regulate distribution of water in accordance with “rights of record”).

Until the issuance of the Findings of Fact and Order of Determination, the water right claims at issue in the Adjudication have remained outside the prior appropriation system. OWRD has not had the authority to regulate either in favor of or against these claims. ORS 539.045 (authorizing the watermaster to regulate according to “water rights of record,” which as defined does not include adjudication claims). With the entry of the Findings of Fact and Order of Determination in OWRD’s records, OWRD now has regulatory authority over the claims. ORS 539.130(4) (“the determination...shall be in full force and effect from the date of its entry in the records of the department unless its operation shall be stayed by a bond as provided in ORS 539.180”); 539.170 (while the Adjudication is pending in Circuit Court, “the division of water from the stream shall be made in accordance with the order of the director”).

OWRD has administered the initial phases of the Adjudication, including receipt of claims and contests, conduct of contested cases and preparation of the Findings of Fact and Order of Determination. The Circuit Court is responsible for resolution of exceptions filed to the Findings of Fact and Order of Determination and issuance of the water right decree.

A-2. BASIN DESCRIPTION

The Klamath Basin is located in south central Oregon and northwestern California. The portion of the drainage basin located in Oregon measures approximately 85 miles from north to south and averages about 70 miles from east to west. It encompasses the major portion of Klamath County and smaller parts of Jackson and Lake Counties. The drainage area in Oregon includes a closed basin contiguous to the natural drainage basin of the Klamath River. This closed basin is the Lost River drainage located in the eastern extremity. The Adjudication does not address the rights to use water within the Lost River drainage. Therefore, references to the “Klamath River Drainage Basin,” the “Klamath River Basin” or the “Klamath Basin” in the Findings of Fact and Order of Determination do not include the Lost River drainage, unless specifically stated otherwise.

Stream Systems within the Klamath River Drainage Basin (excluding the Lost River drainage)

Crater Lake, lying in the caldera of collapsed Mount Mazama, is a major water feature of the basin and is the principal attraction of the only National Park within the State of Oregon. Located along the crest of the Cascade Range, it has no visible inlet or outlet. On a long-term basis, precipitation and snowmelt on the crater walls are balanced by seepage and evaporation from the lake surface. The lake has a surface area of approximately 13,200 acres.

Upper Klamath Lake, the largest natural lake within the state, is another outstanding water feature of the basin. It is fed by both surface water entering from the north and west (the Williamson and Wood Rivers, its major tributaries,) and large springs and seeps located in the lake bed.

The Williamson River rises in large springs along the toe of Booth Ridge in the northeasterly portion of the basin. It flows northward for some distance before turning west and entering Klamath Marsh. From Klamath Marsh it flows southerly into Upper Klamath Lake. Between Klamath Marsh and Upper Klamath Lake, the Williamson has two significant tributaries. The first, Spring Creek, which enters the Williamson above the town of Chiloquin, exhibits almost constant flow; the second, Sprague River, joins the Williamson just south of Chiloquin.

The Sprague River has its headwaters on the westerly slopes of Coleman Rim and Gearhart Mountain in the eastern extremity of the basin. It is joined in the central portions of the Sprague River Valley by a major tributary, the Sycan River. The headwaters of the Sycan River are on Winter Ridge in the extreme easterly portion of the basin. The river flows in a northwesterly direction until it enters Sycan Marsh. From the marsh it flows southwesterly to its confluence with the Sprague. The Sprague River then flows generally westerly until it merges with the Williamson River near the town of Chiloquin.

Wood River rises from the Wood River Springs. The springs are located about 17 miles due north of Agency Lake. Wood River drains into Agency Lake, the shallow, marshy, northerly arm of Upper Klamath Lake.

Drainage from the easterly slopes of the Cascade Mountains provides surface inflows on the west side of Upper Klamath Lake. Within this western drainage, many small high altitude lakes exist in small natural pockets. One of these, Fourmile Lake, provides storage for releases into Cascade Canal, one of two systems that export water from the Klamath Basin for use in the Rogue Basin to the west. The other system utilizes water from Howard Prairie Lake and transfers it via the Howard Prairie Canal to the Rogue Basin.

Prior to modification by man, the outlet of Upper Klamath Lake was over a basalt dike located at the extreme southern end of the lake. This dike, which formed natural falls, is the headwaters of the first mile stretch of the Klamath River, which is known as the Link River. The Link River discharges into Lake Ewauna, which during peak floods overflowed into Lower Klamath Lake.

Historically, flood overflows from Lake Ewauna fed this large natural marsh known as Lower Klamath Lake. The area inundated extended from Klamath River into California and covered approximately 94,000 acres. It was in this old lakebed that some of the early private irrigation development occurred. Much of the area in Oregon has been reclaimed for agricultural purposes.

The Klamath River leaves Lake Ewauna, flowing in a generally southerly and westerly direction. Near Keno, the stream narrows and enters a precipitous gorge from which it enters John C. Boyle Reservoir. After release through a power generation facility, it leaves the state, flowing in a southwesterly direction for about 208 miles where it reaches its estuary at the town of Klamath, California.

Previously Adjudicated Sub-Basins

Along several tributaries of the Klamath River, successful adjudications of certain types of water right claims have already been completed. Specifically, prior adjudications have been completed on the North and South Forks of the Sprague River, Annie Creek, Cherry Creek, Four

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and Seven Mile Creeks and the Wood River. The effect of these prior adjudications is addressed in the Partial Orders of Determination for claims in which a prior adjudication is relevant.

A-3 NOTICE OF INVESTIGATION OF STREAM

ORS 539.030 provides: “The Water Resources Director shall prepare a notice, setting forth the date when the director or the assistant of the director will begin such investigation as may be necessary for a proper determination of the relative rights of the various claimants to the use of the waters of the stream. The notice shall be published in two issues of one or more newspapers having general circulation in the counties in which the stream is situated, the last publication of the notice to be at least 10 days prior to the date set in the notice for the beginning of the investigation by the director or the assistant of the director.”

The following notices were made in accordance with ORS 539.030:

12/23/1975 notice

On December 23, 1975, the OWRD Director, James E. Sexson, issued a document entitled “Notice to Water Users, Klamath River and Its Tributaries” (“December 23, 1975 Notice”). (Appendix A-1.) The December 23, 1975 Notice stated that pursuant to ORS 539.020 “on September 1, 1976 the Water Resources Director of the State of Oregon will begin an investigation of the flow and use of the waters of the Klamath River and its tributaries . . . (except Cherry Creek, Anna Creek, and those portions of the Wood River, Sprague River and Swan Lake Basin outside the former Klamath Indian Reservation boundaries).” The December 23, 1975 Notice was published in the Klamath Falls Herald and News on January 20, 1976 and January 27, 1976; the Lake County Examiner on January 15, 1976 and January 22, 1976; and the Medford Mail Tribune (Jackson County) on January 20, 1976 and January 27, 1976. In addition, the December 23, 1975 Notice was also given by certified mail to those federal agencies identified in Appendix A-2 on April 23, 1976, and to the federal entities listed on Appendix A-3 on April 29, 1976.

The December 23, 1975 Notice directed any person intending to make a water right claim in the Adjudication to file a “written notification of intent to file a claim on or before October 1, 1976” (“Notice of Intention”). The notice also included notification that a field inspection would ensue after a Notice of Intention was received by OWRD, and that there would be a fixed time and place in the future to receive claims and testimony.

3/1/1977 Supplemental Notice

On March 1, 1977, OWRD Director, James Sexson, issued a document entitled “Supplemental Notice to Water Users, Klamath River and Its Tributaries” (“March 1, 1977 Notice”). (Appendix A-4.) The March 1, 1977 Notice was published in the Klamath Herald and News, the Lake County Examiner, and the Medford Mail Tribune (Jackson County) on April 21, 1977 and April 28, 1977. In addition, although not required by statute, the March 1, 1977 Notice was also given by certified mail. The service list was compiled using with records of the county assessor. These persons are identified in Appendix A-5. Small groups of certified mailings relating to this notice continued between April 25, 1977 and April 9, 1980. The recipients of these additional mailings are identified in Appendix A-6.

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The March 1, 1977 Notice provided any person who “intend[ed] to claim rights to the beneficial use of waters of said stream system, such use having been initiated prior to February 24, 1909 or prior to the effective dates for vested rights as provided by law, for those lands within the boundary of the former Klamath Indian Reservation, and continued to the present time, are required to file with the Water Resources Department . . . a written notice of intention to file a claim, as provided by ORS 539.030.” A form entitled “Notice of Intention to File A Claim” was enclosed with the March 1, 1977 Notice. (Appendix A-7.)

A-4 EXAMINATION OF STREAMS AND DIVERSIONS AND IRRIGATED LANDS

Numerous Notice of Intention filings were received by OWRD. These filings are organized by Township, Range, Section in Appendix B. In addition, a summary list of Notices of Intention organized by the name of the filer, and secondarily identified by Township Range and Section is in Appendix N. Based on the Notice of Intention filings, OWRD began conducting and subsequently completed “an examination of the stream and the works diverting water therefrom,” including “measurement of the discharge of the stream and of the capacity of the various diversions and distribution works, and an examination of the approximate measurement of the lands irrigated from the various diversion and distribution works.” ORS 539.120.

I. Aerial Photography

To facilitate field investigation work, OWRD commissioned NASA to take aerial photographs of the lands within the basin. To prepare these photographs for field work, OWRD staff drafted Public Land Survey lines onto the photos, and over 225 miles of distance measurements were taken in the field to confirm their scale. These measurements were made through the use of geodimeter, theodolite, and an electronic distance measurement (EDM) instrument. The flight paths (Flights 1 & 2) and their associated aerial photographs paths are in Appendix C.

II. Field Inspections

Based on the Notice of Intention filings, OWRD conducted field inspections. On ground inspections were made of diversion works, canals and ditches, natural overflow, and water use for irrigation, livestock watering and domestic use, among other uses. The majority of field inspections were conducted in the presence of persons with knowledge of water use (such as landowners, tenants and employees) on the lands being inspected. These individuals provided valuable information about the elements of the water use, as well as data regarding the history of land ownership and historical water development on the property. OWRD’s field inspectors observed and recorded characteristics of the diversion and distribution systems necessary to calculate their capacities (e.g. types and sizes of pumps; types and sizes of culverts; ditch sizes, types, and conditions; sprinkler sizes, etc.). Canal measurements are in Appendix D. In instances where water was in use during the inspection, direct water use measurements were often taken.

III. Field Inspection Reports

Following each field inspection, a detailed Field Inspection Report was written. The Field Inspection Reports typically reference the landowners name(s), address of the property, the Township, Range and Section location of the property, tax lot numbers, the source of water, use or purpose of water, relevant aerial photo numbers, and date of the inspection. In addition, each report includes a detailed narrative, specifying who was spoken with and their relationship to the land, and describing information gathered concerning water use as it pertained to dates of historical and current use. The narrative also includes a description of the lay of the land, drainage patterns, the types of vegetation encountered, evidence of old ditches, and the method of irrigation – natural overflow, subirrigation or irrigation system. If natural irrigation occurred there is generally a description of the directional movement of water and when the water flowed to various parcels of land. If an irrigation system was used there is generally a description of the method. For sprinkler systems data was recorded for the motor, pump, intake, output, mainline, handline, wheelines, types of sprinklers, etc. For irrigation from ditches and canals information was recorded on the locations of headgates or slidegates, the amount of head, use of laterals, and a general description of flood irrigation if applicable. Domestic use and approximate numbers of livestock on the land were also noted. Field inspection reports are filed with the notices of intention by Township, Range, Section. (See Appendix B.)

IV. Field Investigation Maps

Following field inspections in which evidence of water use was found, maps were drafted showing the course of the stream, the location of each diversion point, and each ditch, canal, pipeline or other means of conveying the water to the place of use, and the location of the place of use within each legal subdivision. These Mylar maps were based upon photogrammetry, plane table and stadia surveys, and in some cases existing final proof survey maps. In addition, OWRD staff relied on U.S. Government Land Office records, county and private survey records, and other county records, such as those relating to Indian allotments and deeds. In addition, water uses noted by OWRD's field inspectors were often illustrated on relevant aerial photo to use as an aid while drafting the maps. Most uses were drafted on township maps at a scale of 1 inch = 1320 feet; some small lots were drafted at a scale that allowed even greater detail to be shown.

The original maps and plats prepared pursuant to ORS 539.120 are submitted herewith and incorporated herein as Appendix E, and referred to as "OWRD Investigation Maps."

V. Streamflow Investigations

The results of OWRD's technical work pertaining to streamflow are presented in Natural Flow Estimates for Streams in the Klamath Basin (Oregon Water Resources Department, Open File Report SW 34-001, June 2004. (See Appendix F (on CD).) Data and documentation pertaining to OWRD's streamflow estimates and stream measurements is also included in Appendix F. In addition, a further description of this work is contained in testimony submitted by Richard Cooper and Jonathan LaMarche in OAH Case Nos. 277, 279-281, and 284-286. Direct testimony by Cooper or Lamarche is generally located around Exhibit 65 for each case;

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rebuttal testimony by Cooper or Lamarche is generally located around Exhibit 168 for each case. This testimony is also included in Appendix F. All of the documents in Appendix F are incorporated by reference as if set forth fully herein.

A-5. NOTICE TO FILE CLAIM

Pursuant to ORS 539.040, on September 7, 1990, Water Resources Director William H. Young issued a document entitled "Notice to File Claim" ("September 7, 1990 Notice"). (Appendix G-1.) The September 7, 1990 Notice enclosed a packet of documents including: Statement and Proof of Claim to Use of Water of the Klamath River and Its Tributaries, Instructions for Statement and Proof of Claim Form, and Klamath Basin Water Rights Adjudication – How to File a Claim – Should I File? (Appendix G-2.) The September 7, 1990 Notice required those desiring to claim a water right in the Adjudication to file Statements and Proofs of Claim between October 15, 1990 and December 7, 1990 (in Klamath Falls), or between December 17, 1990 and February 1, 1991 (in Salem).

Pursuant to ORS 539.040(1) the September 7, 1990 Notice was published in the Times Herald and News on September 11 and 12, 1990. Pursuant to ORS 539.040(2), the September 7, 1990 Notice was also given by certified mail to those parties listed in Appendix G-3.

Between November 14 and November 16, 1990, an additional letter titled "Important Information Regarding Water Use" (Appendix G-4), which served as a reminder of the upcoming deadline for filing claims, was mailed via first-class mail to certain parties listed in Appendix G-5.

Time to file a claim extended for certain classes of potential claimants²

As a result of a lawsuit filed on December 18, 1990, federal agencies, the Klamath Tribes, and certain water users within the Klamath Reclamation Project were not required to file claims during the original claiming period. *United States v. Oregon*, Complaint for Declaratory Judgment and Injunctive Relief, Dec. 18, 1990, USDC Case No. CV 90-1329-FR. After several years of litigation, most of the legal issues presented in *United States v. Oregon* were resolved by the Ninth Circuit in 1994. See *United States v. Oregon*, 44 F3d 758 (9th Cir. 1994). *United States v. Oregon* was finally resolved by the District Court on September 17, 1996. See, *United States v. Oregon*, Order of Dismissal, September 17, 1996, USDC Case No. CV 90-1329-FR.

Federal agencies, the Klamath Tribes, and certain other water users within the Klamath Reclamation Project were required to file their claims between October 1, 1996 and April 30, 1997. Pursuant to ORS 539.040, on August 21, 1996, OWRD Director Martha Pagel issued two

² In addition to the extension of time described in this section, OWRD provided certain other extensions of time for providing certain information related to the specific groups of claims. For example, OWRD allowed certain of the claimants referred to as "allottee" claimants to file their claims in stages, with certain claim information to be provided by the February 1, 1991 deadline, and other claim information to be filed by specifically identified, subsequent deadlines. See, e.g., Claim 689 (OAH Case No. 89) Record, OWRD Ex. 1 at 40 (describing stipulation with OWRD permitting certain claim information to be filed after the February 1, 1991 claim filing deadline). To the extent that any such extension was raised as an issue in a contested case proceeding for an affected claim, or is otherwise relevant to a determination of the claim, the extension will be addressed in the Partial Order of Determination for that claim.

notices to file claims pertaining to these classes of potential claimants (“August 21, 1996 Notices to File Claim”). One of the notices was directed to persons using water within the Klamath Reclamation Project. (Appendix H-1.) The other was directed to the United States Attorney General. (Appendix H-2.) A combined version of the August 21, 1996 Notices to File Claim was published on August 25 and 26, 1996, in the Klamath Falls’ Herald and News. (Appendix H-3.) In addition, on August 21, 1996, the August 21, 1996 Notices to File Claim were sent via certified mail to the parties listed in Appendix H-4. The August 21, 1996 Notices to File Claim enclosed a packet of documents including: a cover letter, forms for Statement and Proof of Claim for Federal or Indian Reserved Water Rights, Statement and Proof of Claim to the Use of Waters of the Klamath River and Its Tributaries, Instructions for Statement and Proof of Claim Form, and Klamath Basin Water Rights Adjudication – How to File a Claim – Should I File? (Appendix H-5.)

Both August 21, 1996 Notices to File Claim directed that claims made pursuant to these notices could be filed in Klamath Falls between October 1, 1996 and January 31, 1997, and in Salem between February 3, 1997 and April 30, 1997.

Receipt of Claims

Each claim filed pursuant to the above notices was assigned a claim number by OWRD. Appendix O consists of logs from 1997 and 1998 of claims and claimants called the “Klamath Adjudication Directory.” This directory shows groupings of claims by type. The directory references claims with a “series number” that is stamped on certain of the original claim documents. Some of these numbers may act as map references to maps in the record. Some lists also shows an OWRD File # which is no longer used.

A-6. DELEGATION OF AUTHORITY

On July 14, 1998, OWRD Director, Martha O. Pagel, delegated that portion of her authority comprising “all the powers, duties and functions necessary to accomplish the Klamath Basin Adjudication” to Water Rights Administrator, Richard D. Bailey. July 14, 1998 Order Delegating Authority to Adjudicate the Waters of the Klamath River and its Tributaries (Appendix I-1). This authority has subsequently been delegated to other OWRD employees, as described below. Each subsequent delegation covered a similar scope of authority. The person holding this delegated authority is referred to as the “Adjudicator.” Throughout the Findings of Fact and Order of Determination, when references are made to actions taken by “OWRD” (e.g., specific findings of fact, conclusions of law, or partial orders of determination) following the initial delegation of authority on July 14, 1998, unless otherwise specified the referenced actions are exercises of the Adjudicator’s delegated authority.

On January 27, 2003, OWRD Director, Paul R. Cleary, temporarily delegated Thomas Byler authority to act as Adjudicator. Order Temporarily Delegating Authority to Adjudicate the Waters of the Klamath River and its Tributaries (Appendix I-2). On March 10, 2003, OWRD Director, Paul R. Cleary, revoked the temporary delegation of authority to Thomas Byler and reinstated the July 14, 1998 delegation of authority to Richard D. Bailey. Order Revoking Temporary Delegation of Authority to Adjudicate the Waters of the Klamath River and its Tributaries and Reinstating Order Dated July 14, 1998 (Appendix I-3).

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On February 18, 2005, OWRD director, Philip C. Ward, temporarily delegated Dwight French authority to act as Adjudicator. Order Temporarily Delegating Authority to Adjudicate the Waters of the Klamath River and its Tributaries (Appendix I-4). Dwight French was appointed Water Rights and Adjudications Division Manager on August 8, 2005. On August 16, 2005, OWRD Director, Phillip C. Ward, revoked the February 18, 2005 temporary delegation order and delegated Dwight French to act as Adjudicator. Order Revoking Order Temporarily Delegating Authority to Adjudicate the Waters of the Klamath River and its Tributaries and Delegating Authority to Adjudicate the Waters of the Klamath River and its Tributaries (Appendix I-5).

A-7. NOTICE OF OPEN INSPECTION

Pursuant to ORS 539.090, on September 16, 1999, OWRD Adjudicator, Richard D. Bailey issued a "NOTICE OF OPEN INSPECTION OF CLAIMS Klamath Basin General Stream Adjudication" ("Open Inspection Notice"), which gave notice that all claim information and other information of record would be available for inspection to all claimants and to any party who notified OWRD that they wished to contest the claim(s) of others. (Appendix J-1.) The Open Inspection Notice was mailed by certified mail to the parties listed in Appendix J-2. The Open Inspection Notice was published in the Klamath Falls Herald and News on Sunday, September 26, 1999. (Appendix J-3.)

The Open Inspection Notice provided for inspection in two phases: October 4, 1999 through November 5, 1999 in Klamath Falls, Oregon, and November 15, 1999 through January 14, 2000 in Salem, Oregon.

To describe the process, two sample sets of contest form and instructions for filing a contest were included in the mailing. (Appendix J-4.) One set is for claimants, titled "Statement of Contest of Preliminary Evaluation of Claim: YOUR CLAIM." The second set is to contest the claims of others titled "Statement of Contest of Claim and/or Preliminary Evaluation of Claim: CLAIMS OF OTHERS."

Open Inspection Period Extended

On December 8, 1999, OWRD Adjudicator Bailey sent a memorandum, via regular mail, to persons having an interest in the waters of the Klamath Basin. (Appendix J-5.) This memorandum, among other things, extended the Salem portion of the Open Inspection period until March 31, 2000. On December 16, 1999, December 21, 1999, and December 29, 1999, copies of the December 8, 1999 Memorandum, along with the Open Inspection Notice, were mailed to individuals who did not receive the September 16, 1999 Open Inspection Notice due to OWRD's mail being returned undeliverable (jointly referred to as Appendix J-6).

On January 10, 2000, OWRD Adjudicator Bailey issued a "NOTICE OF EXTENSION OF PERIOD FOR OPEN INSPECTION OF CLAIMS Klamath Basin General Stream Adjudication" ("Notice of Extension of Open Inspection"), extending the Salem portion of the Open Inspection period until March 31, 2000. (Appendix J-7.) The Notice of Extension of Open Inspection was given on January 7, 2000, to those parties listed in Appendix J-8.

A-8. PRELIMINARY EVALUATION OF CLAIMS

On October 4, 1999 (the day that Open Inspection commenced), OWRD Adjudicator Bailey issued a document entitled “Klamath Basin Adjudication Summary and Preliminary Evaluation of Claims” (“Preliminary Evaluation”). (Appendix K.) The Department’s Preliminary Evaluation of claims is not required by law and created only for the benefit of contestants and claimants. OWRD does not attribute any weight to the Preliminary Evaluation for any of the individual claims in the Findings of Fact and Order of Determination. The weight assigned to documents that OWRD may have relied on in making the Preliminary Evaluation of each claim is dependent on the nature of the document.

A-9. NOTICE OF OPPORTUNITY FOR CONTESTED CASE HEARING

Pursuant to ORS 539.100, on February 11, 2000, OWRD Adjudicator Bailey issued a “Notice of Opportunity for Contested Case Hearing Regarding Claims” (“Contested Case Notice”). (Appendix L-1.) The Contested Case Notice enclosures included: Frequently Asked Questions; Statement of Contest of Preliminary Evaluation of Claim – Your Claim; Instructions for Statement and Contest Forms – Your Claim; Statement of Contest of Preliminary Evaluation of Claim – Claim of Others; and Instructions for Statement and Contest Forms – Claims of Others. (Appendix L-2) The Contested Case Notice was served by certified mail on February 15, 2000, to persons having or appearing to have an interest in the waters of the Klamath Basin, including holders of non-cancelled water rights. (Appendix L-3). The Contested Case Notice was also sent via certified mail to 29 Irrigation Districts and individual patrons of those Irrigation Districts on March 10, 13, 14, and 15, 2000. (Appendix L-4.) On March 22, 2000, ten Contested Case Notices were mailed to water right owners who did not receive the February 15, 2000 mailing due to having moved or due to errors by OWRD. In addition, four Contested Case Notices were sent via international registered mail to residents of Canada and Great Britain who own land that received Klamath Basin water via irrigation districts. (Appendix L-5.) On March 23, 2000, a Contested Case Notice was sent via certified mail to one individual who had not received the February 15, 2000 mailing due to an address change not having been entered in OWRD’s database (Appendix L-6). On March 27, 2000, the Contested Case Notice was sent via certified mail to two claimants who had recently purchased property. (Appendix L-7.)

In accordance with the Contested Case Notice, any person desiring to contest the Adjudicator’s Preliminary Evaluation and/or the water right claim of another person was required to file a contest (which served as a request for a contested case hearing) between April 3, 2000 and May 8, 2000. A total of 5,656 contests were filed on or before May 8, 2000.

Each contest filed pursuant to the above notices was assigned a contest number by OWRD. In some cases multiple parties jointly submitted a single contest. Appendix M is a “Contest Index” showing Claims and their associated contests and the name(s) of the original contestant.

A-10. CONTESTED CASE HEARINGS

As required by Oregon Laws 1999, Ch. 849, sec. 9, contested claims were referred (during a period between May 8, 2000 and November 2001) to the Hearing Officer Panel, now known as the Office of Administrative Hearings (OAH), for a contested case hearing. All contested case proceedings are addressed in the Partial Orders of Determination for each claim subject to a contested case hearing.

A small number of claims were not contested. These cases were not referred to the OAH for a contested case hearing. Additionally, some claims and some contests were withdrawn prior to time set for hearing of such claims or contests. Depending on the procedural posture of the case, the claim and/or contest was either dismissed by the Administrative Law Judge and referred back to the Adjudicator, or the claim and/or contest was withdrawn by the Adjudicator in accordance with OAR 137-003-515(4).

The OAH assigned a contested case number to each case. Generally, a single claim and all its associated contests were referred to the OAH as a single contested case. However, in some instances groups of claims may have been consolidated in a single case, or certain cases may have been consolidated for the purpose of a single hearing.

A-11. PARTIAL ORDERS OF DETERMINATION

Following the disposition of individual, contested claims at the OAH (whether by proposed order, withdrawal of contests, or a proposed settlement), the Adjudicator reviewed the proposed disposition and the record pertaining to each claim. The Adjudicator also reviewed the claims that were not contested. The Adjudicator's review and determination of each claim is reflected in a Partial Order of Determination for the claim. All of the Partial Orders of Determination for the Adjudication are compiled herein as part of the Findings of Fact and Order of Determination.

A-12. THE RECORD

The Adjudication record includes all documents entered into evidence or in OWRD's files pertaining to a given claim and the appendices to the Findings of Fact and Order of Determination. The documents pertaining to individual claims are not treated as appendices, but are part of the record filed with the clerk of the Klamath County Circuit Court, pursuant to ORS 539.130. The evidentiary record of a given contested claim is limited to the evidence admitted in the contested case proceeding(s) pertaining to that claim, with the exception that contested claims that were withdrawn from the OAH due to proposed settlement or the withdrawal of contests are not so limited, and may rely on evidence in the general Adjudication record relevant to such claims, unless otherwise stated in specific settlement or contest withdrawal documents.

Most of the Appendices to the Findings of Fact and Order of Determination have been referenced and described above, but there are a number that have not. The remainder are included within Appendix P. The contents of Appendix P include the following:

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- P-1: A 1991 "Klamath Claims Indexes" that is utilizes a file numbering system no longer used when referencing the claims.
- P-2: Pro Hac Vice Records
- P-3: "Dale White Correspondence" File
- P-4: Klamath Tribes Census'
- P-5: Misfilings
- P-6: Returned Mail from specified notices (Filing Cabinet)
- P-7: Certified Mailing Receipts from specified notices (Filing Cabinet)
- P-8: Maps of Record (in Map file and on DVD set with index)
- P-9: Assessment Rolls
- P-10: Water Right Records

A-13. CHANGE OF OWNERSHIP RECORDS FOR TWO CLAIMANTS

In the following two claims, OWRD received change of ownership forms after completion of contested case proceedings in the claims before the Office of Administrative Hearings (OAH). Because these particular changes in ownership may bear on the legal status of a part or all of these claims, and because the claims had already been referred back to OWRD for final determination, OWRD did not change the name of the claimant in the Partial Orders of Determination of these claims. OWRD instead records the receipt of these changes of ownership forms here.

Claim 267

The property appurtenant to Claim 267 was subsequently transferred to Brenda C. Watkins Loving Trust, Brenda C. Watkins, Trustee. *See* CHANGE OF OWNERSHIP FORM (Aug. 18, 2006) and STATUTORY WARRANTY DEED, County of Klamath (Aug. 3, 2006) in the claim file for Claim 267.

Claim 275

The property appurtenant to Claim 275 was subsequently transferred to the Stewart Family Trust dated 6/4/2003, John D. Stewart, Trustee. *See* CHANGE OF OWNERSHIP FORM (Nov. 2, 2009) and STATUTORY WARRANTY DEED, County of Klamath (Nov. 24, 2008) in the claim file for Claim 275.

A-14. GENERAL FINDINGS OF FACT PERTAINING TO PARTIAL ORDERS OF DETERMINATION

In general, claims for irrigation, stockwater and domestic uses contained evidence pertaining to the appropriate rates, duties and seasons of water use for the claimed uses. However, where a claim contains no evidence to the contrary, OWRD applies the following

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standard rates, duties and seasons, which are based on Appendix A to OWRD's Preliminary Evaluation. Certain claims' rates, duties or seasons may also be limited by the quantity of water or the length of the season claimed. The individual Partial Orders of Determination state the rates, duties and seasons for each claim recognized for an irrigation, stockwater or domestic use. Where the standard rate, duty or season applies, the individual Partial Order of Determination will incorporate these General Findings of Fact.

I. Irrigation

1. Duty

The standard duty for irrigation is not to exceed three and one-half acre-feet-per-acre during any one irrigation season, unless otherwise specified in the Partial Order of Determination for the claim.

2. Rate

The standard rate for irrigation is one-fortieth cubic foot per second for each irrigated acre, unless otherwise specified in the Partial Order of Determination for the claim.

3. Irrigation Season

The standard irrigation season is March 1 through October 31 each year, unless otherwise specified unless otherwise specified in the Partial Order of Determination for the claim.

II. Stockwater Use

1. Rate for Non-dairy Stockwater use

The standard rate for non-dairy stockwater use is twelve gallons per day per head, unless otherwise specified in the individual claim. If a claim is not specified as dairy stockwatering, the claim is treated as being for non-dairy stockwatering.

2. Rate for Dairy Stockwater Use

The standard rate for dairy stockwater claims is 35 gallons per day per head, unless otherwise specified in the individual claim.

3. Stockwater Season

The standard season for stockwater use is January 1 through December 31 each year, unless otherwise specified in the individual claim.

III. Domestic Use

1. Domestic Use Rate

The standard rate for domestic use is one-hundredth of one cubic foot per second per home, unless otherwise specified in the individual claim.

2. Domestic Use Season

The standard season for domestic use is January 1 through December 31 each year, unless otherwise specified in the individual claim.

A-15. LAYERED WATER RIGHTS

Certain claims recognized in whole or in part in the Findings of Fact and Order of Determination may have other rights or recognized claims on a portion or all of the same place of use, for the same purpose of use, and from the same or different sources of water, as the recognized claim. These overlapping rights are sometimes referred to as “stacked” rights. The “stacked” rights may result from the recognition of other adjudication claims based on independent events of appropriation, or from rights initiated through Oregon’s permit system after the effective date of the Water Rights Code in 1909. Use of water on a place of use with “stacked” rights may not exceed the rate and duty necessary for beneficial use of water. In other words, the “stacked” rights may not be combined in such a way as to exceed the rate and duty necessary for beneficial use of water on a given place of use.

A-16. PLACE OF MEASUREMENT

The location of any required water use or streamflow measurements are addressed in the individual Partial Orders of Determination.

A-17. CONCLUSIVE AS TO EXISTING RIGHTS

ORS 539.200 provides that the Findings of Fact and Order of Determination, as confirmed or modified in the decree issued by the Circuit Court, “shall be conclusive as to all prior rights and the rights of all existing claimants upon the stream or other body of water lawfully embraced in the determination.”

Pursuant to ORS 539.210, any potential claimant who has failed to timely file a claim in the Adjudication “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.”

A-18. FILING EXCEPTIONS TO THE FINDINGS OF FACT AND ORDER OF DETERMINATION

Once the Final Order of Determination is filed with the Circuit Court, a date for hearing the determination will be established. ORS 539.130(2). The Water Resources Department notifies owners and claimants of the time set for the hearing. ORS 539.130(3). Parties may file exceptions to the Findings of Fact and Order of Determination prior the time set for hearing in accordance with ORS 539.150.

B. GENERAL CONCLUSIONS OF LAW

The general conclusions of law are addressed in separate subsections B-1 through B-9 as follows:

- B-1 GENERAL CONCLUSIONS OF LAW CONCERNING PRE-1909 CLAIMS
- B-2 GENERAL CONCLUSIONS OF LAW CONCERNING ALLOTTEE CLAIMS
- B-3 GENERAL CONCLUSIONS OF LAW CONCERNING WALTON CLAIMS
- B-4 GENERAL CONCLUSIONS OF LAW CONCERNING KLAMATH TERMINATION ACT CLAIMS
- B-5 GENERAL CONCLUSIONS OF LAW CONCERNING FEDERAL RESERVED WATER RIGHTS
- B-6 GENERAL CONCLUSIONS OF LAW CONCERNING THE 1897 ORGANIC ACT
- B-7 GENERAL CONCLUSIONS OF LAW CONCERNING PWR-107 CLAIMS
- B-8 GENERAL CONCLUSIONS OF LAW CONCERNING ACQUIRED LANDS
- B-9 GENERAL CONCLUSIONS OF LAW CONCERNING AMENDMENT OF CLAIMS

B-1. GENERAL CONCLUSIONS OF LAW CONCERNING PRE-1909 CLAIMS

1. Elements of a Pre-1909 Water Right

Under state law, to establish a right to the use of water initiated prior to February 24, 1909 (a “pre-1909 water right”):

[a]s a general rule ... three elements must exist: (1) an intent to apply it to a beneficial use, existing at the time or contemplated in the future; (2) a diversion from the natural channel by means of a ditch, canal or other structure; and (3) an application of it within a reasonable time to some useful industry....

In re Water Rights of Silvies River, 115 Or 27, 64-65 (1925); *see also Low v. Rizor*, 25 Or 551, 557 (1894). This articulation of the elements of a pre-1909 water right parallels ORS 539.010(4), which provides:

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The right of any person to take and use water shall not be impaired or affected by any provisions of the Water Rights Act ... where appropriations were initiated prior to February 24, 1909, and such appropriators, their heirs, successors or assigns did, in good faith and in compliance with the laws then existing, commence the construction of works for the application of the water so appropriated to a beneficial use, and thereafter prosecuted such work diligently and continuously to completion. However, all such rights shall be adjudicated in the manner provided in this chapter.

Id. Thus, this statute articulates a three-part test applicable to a pre-1909 water right: (1) good faith commencement prior to February 24, 1909; (2) of construction of works to apply water to a beneficial use; and (3) prosecuted with due diligence. OWRD addresses each of these elements in turn.

A. Intent

The *Silvies River* court defined the element of intent as follows:

it is the present *bona fide* design or intention of applying [water] to some immediate beneficial use, or the appropriation must be made in the present *bona fide* contemplation of a future application of it to such a purpose; it should be shown in all its fullness by the facts and circumstances to have been present in the mind of the appropriator at the time the appropriation was made or claimed.

115 Or 27, 64-65. See also *Hindman v. Rizor*, 21 Or 112, 120 (1891) (“While (the appropriators) could rightfully appropriate water not only for the present but also for the future needs of the land, the water so appropriated must have been utilized within a reasonable time....”). Thus, while the “use” or application may be present or future, the “intent” or “contemplation” must in either case be contemporaneous with the initial appropriation. The original intention must include that the water will be used on certain lands “then definitely had in mind.” *In re Water Rights of Deschutes River and Tributaries*, 134 Or 623, 655 (1930); see also *Nevada Ditch Co. v. Bennett*, 30 Or 59, 89 (1896); *In re Water Rights of Hood River*, 114 Or 112, 137-38 (1924). Although it is necessary that the original appropriator had such intent “in mind” at the time of the original appropriation, it is also essential that the intent continue in the original or subsequent appropriators until actual application to beneficial use. *Nevada Ditch Co.* at 89 (intent may be declared through another); *Hood River* at 137-38 (it must be “*reasonably anticipated* that when the diversion is ultimately completed . . . [the] land will then, or with reasonable diligence thereafter [be] ready to receive it”) (Emphasis added).

B. Diversion

As stated above, a “diversion from the natural channel by means of a ditch, canal or other structure,” *Silvies River*, 115 Or at 64-65 (1925), or the “construction of works,” ORS 539.010(4), for the diversion and delivery of water to a beneficial use is generally a required element of a pre-1909 water right.

There is an exception to this requirement. No initial diversion is required where the appropriator's land is "naturally irrigated" and the appropriator "in some substantial way indicates that it is his intention to reap the benefit of the fruit of the irrigation." *Id.* at 66. In such case, the priority date is "deemed to be when the proprietor of the land accepts the gift made by nature..." *Id.*

The *Silvies River* court described the reasoning behind this exception to the diversion requirement:

[D]iversion of the water has a special application or exception to much of the land in the Harney Valley. It involves the matter of the natural irrigation of the land. Nature has been very generous to the Harney Valley in this respect. With practically no artificial works for irrigation, thousands of acres are naturally watered.... It would seem to be fair and equitable, if not absolutely essential, that such date be deemed to be when the proprietor of the land accepts the gift made by nature, and garners the produce of the irrigation by harvesting or utilizing the crops grown on the land, or making preparation for so doing, or in some substantial way indicated that it is his intention to reap the benefit of the fruit of the irrigation. When no "ditch, canal, or other structure" is necessary to divert the water from its natural channel, the law does not vainly require such works, prior to an appropriation. We do not intend to suggest that in most cases the building of some kind of an irrigation system is not *requisite after the appropriation is made* in order to effect an economical beneficial use of such water and prevent waste. This should be accomplished within a reasonable time as circumstances permit and necessities require....

Id. (Emphasis added). This principle was affirmed and clarified in *Warner Valley Stock Co. v. Lynch*, 215 Or 523 (1959), which specifically states that it is "consistent" with the statements of the Oregon Supreme Court in *Silvies River*, 115 Or 27 (1925), as well as *In re Willow Creek*, 74 Or 592 (1915), and *Hough v. Porter*, 51 Or 318 (1908).

The *Warner Valley Stock Co.* case involved interpretation of the findings and order of determination as well as the 1929 decree for the waters of Warner Lakes and their tributaries. 215 Or at 532-33. Plaintiffs filed the suit after the Lake County Circuit Court directed the State Engineer to issue permits to Warner Valley Stock Company for the construction of two reservoirs in Warner Valley. *Id.* at 526. Plaintiffs, who had water rights based on natural overflow from Hart Lake under the 1929 decree, argued the permits would violate their vested water rights. *Id.* at 532. Based on the 1929 decree, the Supreme Court affirmed the circuit court's decision that the method of diversion by overflow was wasteful and, accordingly, held "the *method of diversion* by way of natural over-flow is a privilege only and cannot be insisted upon by the objectors if it interferes with the appropriation by others of the waters for a beneficial use."³ *Id.* at 537 (Emphasis added). It is important to note that the Warner Valley

³ In 1909, the Oregon Supreme Court reached a similar conclusion in *Hough v. Porter*, 51 Or 318, 420 (1909). The *Hough* court found that "wasteful methods so common with early settlers can...be deemed only a privilege
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court, consistent with other court decisions, such as *Hough v. Porter* and *Silvies River*, specifically states only that the *method* of diversion by natural overflow cannot be insisted upon where it is wasteful. These decisions still allow an appropriator to establish a water right for use of that quantity of water obtained by beneficial use. In fact, the *Warner Valley* court went on to emphasize that the appellants had acquired vested water rights that they retained after the court's decision. *Id.* at 538.

Similarly, in *Masterson v. Pacific Livestock Company*, the court found that prior to the adjudication, the defendants had only irrigated their lands by means of natural overflow. 144 Or 397, 401-2 (1933). The *Masterson* court found that, although the decree had not provided the quantity of water to be taken under the right, the natural irrigation equaled no more than five acres "in the regular way." 144 Or at 406-8.

Thus, the case law indicates that appropriators may acquire pre-1909 water rights using natural overflow as the method of diversion. To avoid the waste of water, Oregon courts have held that the natural overflow diversion method is only a privilege. This does not negate the right, but does limit the appropriator's ability to demand delivery of water by the natural overflow method. Specifically, for any portions of any water rights recognized in the Findings of Fact and Order of Determination that continue to employ natural overflow as a method of irrigation, the holders of such rights cannot make a call on water appropriated under any other water rights. Further, any future conversion from beneficial use of water by natural overflow to beneficial use of the same water from a system relying on a point(s) of diversion will be considered a change in point of diversion subject to approval of a transfer of water right in compliance with the provisions of ORS 540.505 to 540.587.

C. Reasonable Time

The requirement of an "application of (the water) within a reasonable time to some useful industry," *Silvies River*, 115 Or 27 at 65, is synonymous with "reasonable diligence" or "due diligence." See, e.g., *Teel Irrigation Dist. v. Water Resources Dept.*, 323 Or 663, 669 (1996) (noting a showing of "due" diligence under ORS 537.230, which requires "reasonable" diligence). The *Silvies River* court, for example, defined the "reasonable time" element in terms of "reasonable diligence," explaining that such determination must be fact-specific:

The test, both in the construction of the necessary works and in the application of the water to a beneficial purpose, is *reasonable diligence*. There must be such assiduity of work of construction as will manifest to the world a *bona fide intention to complete it within a reasonable time*. The question is one of fact and must be determined from the surrounding circumstances.

Silvies River, 115 Or 27 at 61 (citations omitted) (emphasis added). See also, *In re Water Rights of Hood River*, 114 Or 112, 131 (1924) ("That which is usual and ordinary with men engaged in like enterprises who desire to speedily effect their designs is required.")

permitted merely because it could be exercised without substantial injury to any one; and *no right to such methods of use was acquired thereby.*" *Id.* (Emphasis added.)

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On several occasions, the Oregon Supreme Court has considered what constitutes a reasonable time given the particular circumstances of the case. From these cases, it is possible to determine several of the factors relevant to determining whether water use has been developed within a reasonable time. These factors include the size of the planned development, the technical and economic difficulty of the development, the consistency (or lack thereof) of development, and other extenuating circumstances (such as drought and economic recession).

In *Seaweed v. Pacific Livestock Co.*, 49 Or 157 at 160-61 (1907), the Court stated the general rule succinctly:

What is a reasonable time in which to apply water originally intended to be used for some beneficial purpose depends upon the magnitude of the undertaking and the natural obstacles to be encountered in executing the design: *Hindman v. Rizer*, 21 Ore. 112 (27 P. 13); *Nevada Ditch Co. v. Bennett*, 30 Ore. 59, 85 (45 P. 472; 60 Am. St. Rep. 777).

The Court applied this rule to facts involving settlement of land by the Pacific Livestock's predecessors, Morgan and Hinkey, in 1886, with first irrigation in 1887. Between 1887 and 1899 Morgan and Hinkey "were constantly enlarging the area of their arable land." *Seaweed* at 161. The Pacific Livestock Company bought Morgan and Hinkey's land in 1899, and for a period of five years "made no attempt whatever to prepare any new land for cultivation, whereby a purpose to expand the appropriation might have been disclosed to persons who desired to make a subsequent use of the water." *Id.* Since no cause for the delay was given, and therefore "believing it to have been unreasonable," the Court did not allow the Pacific Livestock Company to expand its appropriation based on the early initiation of the right by Morgan and Hinkey. *Id.* at 161 citing *Cole v. Logan*, 24 Or 304.

Similarly, in *Low v. Rizer*, 25 Or 551, 557 (1894), where an irrigator failed to increase the area under irrigation for a period of 13 years, he "abandoned the right to increase the appropriation."

In *Smyth v. Neal*, 31 Or 105 (1897), the plaintiff settled on the land in 1873, and, by 1888, had appropriated and applied water sufficient to raise 120 acres of wild grasses that were cut for hay and also irrigated 18 acres of grain and garden. In 1882 plaintiff recorded a notice of appropriation. Notwithstanding that plaintiff had installed a new dam and partially dug a new ditch, between 1882 and the institution of the litigation in 1895, plaintiff did not make any additional use of water. Plaintiff also expressly disclaimed any intent to increase his previous (1873) appropriation. Under these circumstances, the Court held that plaintiff's water right was limited to the lands and quantities that were used before 1882. Thus, plaintiff's statements and his failure to expand his irrigated land for a period of 13 years showed lack of reasonable diligence. *Id.* at 108-110.

In *In re Rights to Use of Silvies River*, 115 Or 27 (1925), the predecessor to the Burns Flour Milling Co., Brown, posted a notice of appropriation in 1884. *Id.* at 58-59. Brown dug a

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ditch (mill race) and took water to a mill site within one to two years. However, local attempts to raise grain largely failed, and there was no grain to grind until about 1899, when the first successful crops were harvested. *Id.* at 59-60. The milling machinery was installed in 1899. The Court held that this was diligence, under the circumstances, since it would have been futile to install the milling machinery when there was nothing to mill.

Larger, more difficult projects have been allowed greater periods for development. For example, one of the water rights adjudicated in *In re Water Rights of Deschutes River and Tributaries*, 134 Or 623, 641, 676 (1930), involved several notices of appropriation filed by the Pilot Butte Reclamation Company, predecessor in interest to the Central Oregon Irrigation District. The earliest notice of appropriation, filed in 1900, contemplated that about 140,000 acres would be reclaimed under the appropriation. However, over a period of 20 years, only approximately 48,000 acres of land were reclaimed, and the court determined that this was a reasonable time period for development under the circumstances of that case. *Deschutes* at 635, 655-656. Other land brought under irrigation in excess of the approximately 48,000 acres, were assigned a later priority date under a 1907 notice of appropriation. *Id.* at 635, 655-656.

In *In re Hood River*, 114 Or 112, 147 (1924), the Oregon Supreme Court determined that a 20-year period of development was reasonable, given the technical difficulty of the undertaking. The Court described the challenges involved:

Owing to the topography of the country being mountainous, the water had to be conducted from the bank of a mountain stream to a point 20 miles away, passing through and crossing over ravines and canyons, falling over a precipice at one place and many flumes, pipes and siphons were necessary. It was a stupendous task.

Id. at 138 (Emphasis added). Thus, even where construction of the irrigation system was determined to be a “stupendous task,” the Supreme Court set the diligence period at 20 years.

Finally, in *Wapinitia Irrigation Co. v. Water Users Corp. of Juniper Flat*, 141 Or 504, 507-08 (1932), a decree was issued in 1923 allowing for development of certain inchoate rights, to be developed in five years, or pursuant to any extension(s) that the State Engineer may allow. Under the decree, the rights were assigned priority dates of 1904 (direct flow) and 1905 (storage), for a maximum of 12,000 acres. *Id.* at 507. Irrigation under these rights occurred first in 1917, covering between 1,000 and 2,000 acres. The project was not complete by 1928 when the five-year period expired, and the State Engineer refused to grant any extension. The Court found that considering the circumstances—which included a drought (*id.* at 519), the great depression and associated difficulties in financing further development of the project at (*id.* at 512-14), the fact that the irrigation project was a “mammoth undertaking” (*id.* at 513), and the existence of delivery contracts (*id.* at 516-17), the State Engineer should have granted the extension under the statutory provisions of § 517 Or L (§ 47-403, Or Code 1930). Significantly, however, the Court allowed only two additional years for completion of the irrigation system and actual reclamation of land (up to 8,000 acres) on or before June 1, 1938. *Id.* at 522-23. Thus, the court allowed a maximum of 34 years (1905 to 1938) for development, given the size of the

undertaking, intervening drought, and severe economic problems that made development difficult.

OWRD's determinations with respect to reasonable diligence are based on the principles expressed above, as applied to the facts of each individual claim.

II. Use of Subirrigation

"Subirrigation" describes the use of ground water (water found below the surface) for irrigation without the pumping of water from a well. There are two types of subirrigation. The first is uncontrolled, or "natural" subirrigation. This is subirrigation that occurs due to an unusually high groundwater table or seepage from a nearby stream or lake, for example. A user of this type of subirrigation has no means of controlling the subirrigation or improving the efficiency of the irrigation. Since the user of subirrigation does not have the ability to improve the method of irrigation, the logic of *Warner Valley* dictates that subirrigation may never form the basis for a vested water right. As a result, adjudication claims based on natural subirrigation are denied.

The second type of subirrigation is controlled subirrigation. This is subirrigation that is created by an artificial diversion work (e.g., a dam that causes water levels to rise and increases the area of land being subirrigated). In such a case, the irrigation is being caused by a diversion, and, depending on whether the other elements of a water right claim are met, may form the basis for a vested water right.

B-2. GENERAL CONCLUSIONS OF LAW CONCERNING ALLOTTEE CLAIMS

I. Introduction

"Allottee" claims are federal reserved water right claims based on one of the primary purposes of the Klamath Treaty of 1864. When the United States reserves land for particular purposes, it implicitly reserves sufficient water to accomplish those purposes. *Winters v. United States*, 207 US 564, 577 (1908). These rights are commonly referred to as "federal reserved water rights." Federal reserved water rights are limited to "only that amount of water necessary to fulfill the purpose of the reservation, no more." *Cappaert v. United States*, 426 US 128, 141 (1976). In addition, water is reserved only to meet the "primary" purpose of the reservation, not "secondary" purposes. *United States v. New Mexico*, 438 US 696, 715 (1978). Evaluation of a claim based on an implied reservation of water requires examination of the specific purposes for which the land was reserved, and a determination that that the water is necessary to accomplish those purposes. *Id.* at 700, 702. The primary purposes of a federal reservation are determined by examining the legislation, executive order, or treaty that established the reservation. In *United States v. Adair*, 723 F2d 1394 (9th Cir 1983), the Ninth Circuit determined that one of the primary purposes of the Klamath Indian Reservation (as established by the Klamath Treaty of 1864) was "the purpose of supporting Klamath agriculture."⁴ *Id.* at 1410.

⁴ The Treaty with the Klamath Indians of October 14, 1864, states in part: "(T)he design of the expenditure [in payment for the country ceded by this treaty] ... (is) to promote the well-being of the Indians, advance

Water rights associated with the agricultural purpose of the Klamath Indian Reservation were transferred to individual members of the Klamath Tribes in certain circumstances. Specifically, in 1887, Congress passed the General Allotment Act, which provided that land on Indian reservations could be allotted for the exclusive use of individual Indians. *See* Act of Feb. 8, 1887, ch. 119, 24 Stat. 388 (codified as amended in scattered sections of 25 USC.) Under section 7 of the General Allotment Act, Indian allottees are entitled to a “just and equal distribution” of reservation water. 25 USC § 381. Following the recognition of federal reserved water rights in *Winters*, the United States Supreme Court recognized an Indian allottee’s right to use some of an Indian tribe’s water reserved for irrigation purposes in *United States v. Powers*. Specifically the Court affirmed the position that “when allotments of land were duly made for exclusive use and thereafter conveyed in fee, the right to use some portion of tribal waters essential for cultivation passed to the owners....” 305 US 527, 532 (1939). Subsequently, in *Arizona v. California*, 373 US 546 (1963), the Court articulated a standard for determining agricultural water rights held by tribal members as the result of the creation of federal Indian reservations. This is generally referred to as the “practicably irrigable acreage” (PIA) standard.

A number of claimants to water rights in the Klamath Basin Adjudication are Klamath Indian allottees (i.e., holders of lands within the Klamath Indian Reservation allotted to them by the federal government), claiming an amount of water sufficient to irrigate the allotment’s share of the Klamath Tribes’ PIA, with a priority date of October 14, 1864 (the Treaty date). As described in more detail below, five elements are necessary to constitute a valid claim: 1) The claim must be for water use (current or future) on former Klamath Indian Reservation land; 2) The claimant must be a member of the Klamath Tribes; 3) The land must be arable; 4) Irrigation system development must be both technically possible and economically feasible; and 5) The right must not have been lost during any intervening non-Indian ownership. These rights are entitled to a priority date of October 14, 1864 if the elements of the right are established and the right is otherwise valid.

II. Elements #1 and #2

In *Arizona v. California*, 373 US 546 (1963), the Court held that PIA rights are the rights to water sufficient to fulfill the agricultural purposes of an Indian treaty and are therefore confined to former reservation land. The Court further held that such rights may only be claimed by a member of the tribe(s) for which the reservation was created, and that the rights carry a priority date defined by the Treaty. *Id.* at 600-601. The PIA rights held by Klamath Indian allottees are the rights to water sufficient to fulfill the Treaty purposes of promoting the adoption of an agricultural lifestyle by the Klamath Tribes within the Reservation boundaries. Such rights are therefore confined to former Reservation land and must be claimed by a member of the Klamath Tribes.

III. Elements #3 and #4

them in civilization, and *especially in agriculture*, and to secure their moral improvement and education.” 16 Stat. 707, 708, Art. II (emphasis added).

Elements 3 and 4, echoed in OAR 690-28-026(1), reflect the analyses applied in *In re Rights to Use Water in Big Horn River*, 753 P2d 76 (Wyo. 1988) (“*Big Horn I*”) and other cases. See, e.g., *State ex rel. Martinez v. Lewis*, 861 P2d 235, 247 (N.M.App. 1993). In *Big Horn I*, the court explained: The determination of (PIA) involves a two-part analysis, i.e., the PIA must be susceptible of sustained irrigation (not only proof of the *arability* but also of the *engineering feasibility* of irrigating the land) and irrigable “at reasonable cost.” *Id.* at 101 (emphasis added).

IV. Element #5

The 5th element, echoed in Oregon Administrative Rules 690-028-0026(3), is consistent with the Ninth Circuit’s decision in *United States v. Anderson*, 736 F2d 1358 (9th Cir. 1984), regarding Indian reacquisition of land after allotment and sale to non-Indians. In *Anderson*, the court explained:

...(A) non-Indian successor acquires a right to that quantity of water being utilized at the time title passes, plus that amount of water which the successor puts to *beneficial use with reasonable diligence* following the transfer of title. Where “the full measure of the Indian’s reserved water right is not acquired by this means and maintained through continued use, it is lost to the non-Indian successor.” Consequently, *on reacquisition the Tribe reacquires only those rights which have not been lost through nonuse....*⁶

Id. at 1362. Thus, a non-Indian successor to an Indian allottee can lose both the developed and the “inchoate” portions of the Indian’s PIA right by failing to diligently put such water to beneficial use, and those rights, if lost, are not revived by subsequent Indian reacquisition.

B-3 GENERAL CONCLUSIONS OF LAW CONCERNING WALTON CLAIMS

I. Introduction

Walton claims are federal reserved water right claims based on one of the primary purposes of the Klamath Treaty of 1864. When the United States reserves land for particular purposes, it implicitly reserves sufficient water to accomplish those purposes. *Winters v. United States*, 207 US 564, 577 (1908). These rights are commonly referred to as “federal reserved water rights.” Federal reserved water rights are limited to “only that amount of water necessary to fulfill the purpose of the reservation, no more.” *Cappaert v. United States*, 426 US 128, 141 (1976). In addition, water is reserved only to meet the “primary” purpose of the reservation, not “secondary” purposes. *United States v. New Mexico*, 438 US 696, 715 (1978). Evaluation of a claim based on an implied reservation of water requires examination of the specific purposes for which the land was reserved, and a determination that that the water is necessary to accomplish those purposes. *Id.* at 700, 702. The primary purposes of a federal reservation are determined by examining the legislation, executive order, or treaty that established the reservation. In *United States v. Adair*, 723 F2d 1394 (9th Cir 1983), the Ninth Circuit determined that one of the

primary purposes of the Klamath Indian Reservation (as established by the Klamath Treaty of 1864) was “the purpose of supporting Klamath agriculture.”⁵ *Id.* at 1410.

Water rights associated with the agricultural purpose of the Klamath Indian Reservation were transferred to individual members of the Klamath Tribes in certain circumstances. Specifically, in 1887, Congress passed the General Allotment Act, which provided that land on Indian reservations could be allotted for the exclusive use of individual Indians. *See* Act of Feb. 8, 1887, ch. 119, 24 Stat. 388 (codified as amended in scattered sections of 25 USC.) Under section 7 of the General Allotment Act, Indian allottees are entitled to a “just and equal distribution” of reservation water. 25 USC § 381. Following the recognition of federal reserved water rights in *Winters*, the United States Supreme Court recognized an Indian allottee’s right to use some of an Indian tribe’s water reserved for irrigation purposes in *United States v. Powers*. Specifically the Court affirmed the position that “when allotments of land were duly made for exclusive use and thereafter conveyed in fee, the right to use some portion of tribal waters essential for cultivation passed to the owners....” 305 US 527, 532 (1939). Subsequently, in *Arizona v. California*, 373 US 546 (1963), the Supreme Court articulated a standard for determining agricultural water rights held by tribal members as the result of the creation of federal Indian reservations. This is generally referred to as the “practicably irrigable acreage” (PIA) standard.

A number of claimants to water rights in the Klamath Basin Adjudication have made claims as non-Indian successors to Klamath Indian allottees (i.e., holders of lands within the Klamath Indian Reservation allotted to them by the federal government), claiming an amount of water sufficient to irrigate the allotment’s share of the Klamath Tribes’ PIA, with a priority date of October 14, 1864 (the Treaty date). In *Colville Confederate Tribes v. Walton*, 647 F2d 42 (9th Cir. 1981) (*Walton II*), the Ninth Circuit held that these “allottee” water rights could be transferred to non-Indian successors under certain conditions. The Ninth Circuit subsequently expressly applied the *Walton* analysis to non-Indian successors to Klamath Indian allottees in *United States v. Adair*, 723 F2d 1394, 1417 (9th Cir. 1983). These rights are entitled to a priority date of October 14, 1864 if the elements of the right are established and the right is otherwise valid.

The elements of a *Walton* right are described below.

II. *Walton* Right Elements

1. The claim is for water use on land formerly part of the Klamath Indian Reservation, and the land was allotted to a member of an Indian tribe;

⁵ The Treaty with the Klamath Indians of October 14, 1864, states in part: “(T)he design of the expenditure [in payment for the country ceded by this treaty] ... (is) to promote the well-being of the Indians, advance them in civilization, and *especially in agriculture*, and to secure their moral improvement and education.” 16 Stat. 707, 708, Art. II (emphasis added).

2. The allotted land was transferred from the original allottee, or a direct Indian successor to the original allottee, to a non-Indian successor;
3. The amount of water claimed for irrigation is based on the number of acres under irrigation at the time of transfer from Indian ownership; except that:
4. The claim may include water use based on the Indian allottee's undeveloped irrigable land, to the extent that the additional water use was developed and put to beneficial use with reasonable diligence following transfer from Indian ownership.

The authority for each of these elements is described below. The remainder of these conclusions of law then addresses issues related to the *Walton* doctrine that have arisen in certain of the *Walton* claims.

III. Element #1

The *Walton* doctrine derives initially from the federal government's authority, described above, to reserve water in certain circumstances, and from *Arizona v. California*, 373 US 546 (1963), in which the Court held that PIA rights are the rights to water sufficient to fulfill the agricultural purposes of an Indian treaty and are therefore confined to former reservation land. The PIA rights held by Klamath Indian allottees, claimed by non-Indian successors to those allotments as "*Walton* rights," are the rights to water sufficient to fulfill the Treaty purposes of promoting the adoption of an agricultural lifestyle by the Klamath Tribes within the Reservation boundaries.⁶ Such rights are therefore confined to former Reservation land and carry a priority date defined by the Treaty.

IV. Elements #2, #3, and #4

Elements 2, 3, and 4 are derived from the seminal case of *Colville Confederate Tribes v. Walton*, 647 F2d 42 (9th Cir. 1981) (*Walton II*). Element #2 is derived from the *Walton* court's holding that "(t)he full quantity of water available to the Indian allottee ... may be conveyed to the non-Indian purchaser." *Id.* at 51. Therefore, title must be traced to an Indian allottee. The *Walton* court went on to place the following limitations on the transfer, reflected in elements #3 and #4:

The non-Indian successor acquires a right to water *being appropriated* by the Indian allottee *at the time title passes*. The non-Indian also acquires a right, with a date-of-reservation priority date, to water that he or she appropriates with *reasonable diligence after the passage of title*. If the full measure of the Indian's

⁶ The Treaty with the Klamath Indians of October 14, 1864, states in part: "(T)he design of the expenditure [in payment for the country ceded by this treaty] ... (is) to promote the well-being of the Indians, advance them in civilization, and *especially in agriculture*, and to secure their moral improvement and education." 16 Stat. 707, 708, Art. II (emphasis added).

reserved water right is not acquired by this means and maintained by continued use, it is lost to the non-Indian successor.

Id. (emphasis added).

V. Development of Water Use Following Transfer from Indian Ownership

Certain contestants to individual *Walton* claims in the Adjudication have contended that the inchoate portion of an allottee right transferred to a non-Indian successor is valid only if it is developed with reasonable diligence by the first non-Indian successor. These contestants contend that if the claimed right is transferred a second time prior to development of the inchoate right, the right is necessarily lost. OWRD agrees that the principle of reasonable diligence applies to the inchoate portions of claimed *Walton* rights, but concludes that the number of ownership transfers occurring within the period of reasonable diligence is irrelevant to a determination of the claim.

Western water law measures the development of a water right by the standard of reasonable diligence. The *Walton* cases, borrowing from this principle, require that the inchoate portion of a *Walton* water right either be developed with reasonable diligence, as measured from the date of the initial transfer to non-Indian ownership, or it will be lost. Therefore, OWRD concludes that if the inchoate portion of the right is developed with reasonable diligence, as measured from the initial transfer to a non-Indian, the inchoate right properly vests and intervening transfers to subsequent non-Indians are irrelevant.

Like other western states, Oregon courts have subscribed to the reasonable diligence doctrine. Sometimes referred to as “reasonable time” or “due diligence,” the reasonable diligence standard requires that water is developed “within a reasonable time to some useful industry.” *In re Water Rights of Silvies River*, 115 Or. 27, 65 (1925). Determination of reasonable diligence is dependent upon the facts and circumstances of a particular situation. *See Seaweed v. Pacific Livestock Co.*, 49 Or. 157, 160-161 (1907) (“[reasonable time] depends upon the magnitude of the undertaking and the natural obstacles to be encountered in executing the design.”).

The *Walton* cases did not establish that the inchoate portion of a *Walton* water right must be developed with reasonable diligence by the *first* non-Indian owner. Unfortunately because the language in *Colville Confederated Tribes v. Walton*, 647 F.2d 42 (9th Cir. 1981) (*Walton II*) and *Colville Confederated Tribes v. Walton*, 752 F.2d 397 (9th Cir. 1985) (*Walton III*) is not entirely clear on this issue, a detailed review of the *Walton* cases is required.⁷

⁷ Although *United States v. Adair*, 478 F. Supp. 336, 348-349 (D. Or. 1979) (*Adair I*), *United States v. Adair*, 723 F.2d 1394 (9th Cir. 1983) (*Adair II*), and *United States v. Anderson*, 736 F.2d 1358 (9th Cir. 1984) touch on this issue, they do not add appreciably to the analysis. The Department does note, however, that in *Adair I*, the court found “once land passes out of Indian ownership, all subsequent conveyances are subject to the doctrine of prior appropriation.” 478 F. Supp. at 348-49. This doctrine, as commonly understood throughout the arid West, requires only that water be applied with reasonable diligence following an initial intent to appropriate, and does not require that development be completed by the initial appropriator.

The district court in *Colville Confederated Tribes v. Walton*, 460 F. Supp. 1320 (E.D. Wash. 1978) (*Walton I*) found the following facts pertaining to ownership and development of the parcels at issue:

The allotments now owned by the Waltons passed from Indian ownership in 1942. The former Indian allottees had not irrigated these lands. In 1946, this land was again sold, and although the purchaser was Indian, he was not a member of the Colville Tribes. When Walton bought the property in 1948, approximately 32 acres were under irrigation.

Id. at 1324. The Waltons were therefore not the second non-Indian owners, but the third.⁸ The *Walton I* court concluded that water rights based on the reservation did not transfer from Indian allottees to non-Indian owners. *Id.* at 1328. Likely due to this conclusion, the court did not provide a more detailed history of development.

On review, the *Walton II* court affirmed the above findings of fact, but reversed the lower court's determination on the issue of alienability of allottee rights. "The general rule is that the termination or diminution of Indian rights requires express legislation or a clear inference of Congressional intent gleaned from the surrounding circumstances and legislative history." *Walton II*, 647 F.2d at 50. The court concluded the allottee's reserved water right would be reduced in value if the allottee could only convey the portion of the right already appropriated and therefore characterized this restriction on transferability as a diminution of Indian rights requiring a clear inference of Congressional intent. The court found no such intent by Congress to limit the alienability of the allottee's reserved water right. *Id.*

The court in *Walton II* considered specific aspects of the allottee's rights. Among them, the court found:

Third, the Indian allottee does not lose by non-use the right to a share of reserved water. This characteristic is not applicable to the right acquired by a non-Indian purchaser. The non-Indian successor acquires a right to water being appropriated by the Indian allottee at the time title passes. The non-Indian also acquires a right, with a date-of-reservation priority date, to water that he or she appropriates with reasonable diligence after the passage of title. If the full measure of the Indian's reserved water right is not acquired by this means and maintained by continued use, it is lost to the non-Indian successor.

The full quantity of water available to the Indian allottee thus may be conveyed to the non-Indian purchaser. There is no diminution in the right the Indian may convey. We think Congress would have intended, however, that the non-Indian purchaser, under no competitive disability vis-a-vis other water users, may not retain the right to that quantity of water despite non-use.

⁸ The 1946 purchaser, although an Indian, is considered a "non-Indian owner" for the purposes of this analysis, because only members of the Colville Tribes were entitled to allottee status for rights arising from the Colville Indian Reservation.

...

The district court's holding that Walton has no right to share in water reserved when the Colville reservation was created is reversed. On remand, it will need to determine the number of irrigable acres Walton owns, and the amount of water *he* appropriated with reasonable diligence in order to determine the extent of his right to share in reserved water.

Id. at 51. (Emphasis added). The *Walton II* court understood the Waltons were not the first, nor the second, non-Indian purchasers of the parcel at issue. It is clear from the court's remand instructions that it did not create a "first non-Indian owner" rule. Had the court intended to make such a rule, its instructions would have been quite different. First, determining the amount Walton appropriated with reasonable diligence would have been unnecessary and irrelevant. Second, only 32 acres would have been eligible for a *Walton* right (the amount of acreage under irrigation at the time of Walton's purchase). Therefore, the only question would have been whether those 32 acres were developed with reasonable diligence prior to the sale to the second non-Indian owner in 1946.

The *Walton II* court extended the allottee's reserved right to non-Indian successors to prevent diminution of the right already restricted. The court viewed the reasonable diligence requirement as a restriction, but not a diminution, because non-Indian purchasers were perceived to be on equal footing with "other water users" i.e., non-Indians appropriating under state water laws. If the court established a first non-Indian owner requirement, this equal footing would have been eliminated. A prospective non-Indian purchaser would have to discount the value of the allottee's inchoate right by the risk that the purchaser might sell the parcel prior to development, even if under state law, the period of reasonable diligence would have not yet run. A first non-Indian requirement would be a restriction on alienability that would diminish the value of the allottee's right, as compared to appropriations under state law, and run counter to the court's rationale.

Walton II thus established a requirement that, irrespective of the number of ownership transfers during the period of reasonable diligence, water must be applied with reasonable diligence after transfer to non-Indian ownership. However, the court created confusion by suggesting that the actions of Walton's predecessors were irrelevant to the analysis by referring in its remand instructions only to acres that Walton appropriated with reasonable diligence. As a result, the district court on remand considered its duty to determine only Walton's diligence. "[T]he Circuit is abundantly clear in its mandate: this court is to determine 'the amount of water he [Walton] appropriated with reasonable diligence.' There is no mention whatever of the weight to be accorded performance or non-performance of intervening owners..." *Colville Confederated Tribes v. Walton*, August 31, 1983, Memorandum Decision at 5-6 (E D Wash) (attached hereto as Attachment 1).

The district court's interpretation of *Walton II* would have allowed any distant purchaser of allottee lands to attain a new reasonable diligence period, regardless of the actions of his or her predecessors. If allowed to stand, this interpretation would have undermined the principle of reasonable diligence as understood throughout the arid West, and granted non-Indian purchasers

of allottee rights (whom the *Walton II* court had determined did not need any special advantages) a significant advantage over non-Indians developing water rights pursuant to state law.

In *Walton III*, the circuit court corrected this error, and required that the reasonable diligence period begin running upon transfer to non-Indian ownership and *continue* running despite subsequent transfers to other non-Indians. In clarifying the Ninth Circuit's mandate to the district court, the *Walton III* court stated "the immediate grantee of the original allottee must exercise due diligence..." The court then elaborated:

Calculating Walton's share required an investigation into the diligence with which the immediate grantee from the Indian allottees appropriated water, and the extent to which successor grantees, up to and including Walton, continued to use the water thus appropriated. Otherwise, any remote purchaser could appropriate enough water to irrigate all irrigable acreage with a priority date as of the creation of the Reservation. The reasonable diligence requirement of *Walton II* would be meaningless.

Walton III, 752 F.2d at 402. Therefore, the court's concern was to uphold the reasonable diligence principle by rejecting the district court's view that "any remote purchaser" would be entitled to a new reasonable diligence period. A first non-Indian owner rule is not necessary to uphold the reasonable diligence principle. Rather, all that is needed to make a reasonable diligence rule effective begins with measuring the diligence period of the immediate grantee from the Indian allottees and to continue measuring this period, despite any subsequent transfers.⁹

Had the *Walton III* court established a first non-Indian owner rule, it would have rendered the reasonable diligence principle meaningless. Not only would such a rule create the possibility that, in the case of an immediate conveyance from the first to the second non-Indian owner, the period of reasonable diligence would begin and end instantaneously, but would also be at odds with reasonable diligence as it had been understood throughout the arid West. The *Walton III* court, by coming to the defense of the reasonable diligence principle, did not then choose to undermine it in a different manner.

Further evidence of the *Walton III* court's intent is demonstrated by its reliance on Washington State's law of reasonable diligence as a sufficient limit on development following transfer to a non-Indian. After citing to a Washington case supporting the principle of reasonable diligence,¹⁰ the court stated:

⁹ Under the reasonable diligence standard, an analysis of the immediate grantee's diligence in appropriating water is necessary, and depending on diligence of the immediate grantee and the length of the immediate grantee's ownership, may be dispositive.

¹⁰ The cited case, *Longmire v. Smith*, 26 Wash 439 (1901), involved initial development by the plaintiff's predecessors and the expansion of that development by the plaintiff. The court did not restrict the scope of the right to the development accomplished by plaintiff's predecessors, but rather included within the right to plaintiff's reasonably diligent expansion.

The tests developed to determine whether or not an appropriator has been sufficiently diligent in applying water to a beneficial use to justify relating the priority date back to the initial diversion are appropriate to determine how much water Walton's *predecessors* appropriated with reasonable diligence, after the passage of title.

Id. at 402. (Emphasis added). The court proceeded to analyze the intent and diligence of *all* the non-Indian owners prior to Walton's ownership, rather than of the Whams, the first non-Indian owners. *See id.* at 402-403. The court concluded that the reasonable diligence period had run prior to Walton's purchase in 1948. *Id.* at 403. ("We are unable to infer an intent to appropriate an increasing amount of water from over two decades of relatively static irrigation practices.") The court based its decision on the lack of development over a period of time, and not on the number of intervening non-Indian owners.

For the above-stated reasons, the Department concludes that *Walton II* and *III* do not create a first non-Indian owner rule. Instead, these decisions require that water be developed and applied with reasonable diligence upon transfer from Indian ownership, regardless of the number of ownership transfers during that period. The Department also concludes that *Walton II* and *III* provide a role for state law in defining reasonable diligence for *Walton* claims.¹¹

VI. "Continued Use" of Water Following Transfer from Indian Ownership and Reasonably Diligent Development

Once a water right has been put to beneficial use it is subject to loss for nonuse. This concept applies to both *Walton* rights and rights appropriated under state law. Certain contestants to individual *Walton* claims have contended that a *Walton* claimant has the burden of establishing that water use has continued since the initial application of water to a beneficial use. This is inconsistent with both the *Walton* line of cases and generally recognized principles of western water law. Continued use of a water right is not an element that must be proven in the first instance but, rather, is an affirmative defense that a claimant may assert if challenged for nonuse. Identical to appropriations under state law, it is the *contestants*, not the claimants, that bear the burden of proving that a properly developed *Walton* right has been lost by nonuse.

As the court stated in *Walton II*, *Walton* rights must be "maintained by continued use." 647 F.2d 42, 51 (1981) (*Walton II*). The *Walton II* court did not significantly elaborate on the meaning of the phrase. However, given the decision's heavy reliance on principles of state law in announcing the elements of the *Walton* doctrine, the "continued use" requirement almost certainly refers to the principle that, in a prior appropriation system, water rights may be lost through nonuse. In Oregon, there are two standards for determining loss of a water right through nonuse: abandonment and forfeiture. OWRD concludes that abandonment is more appropriate for determination of unadjudicated water rights in Oregon. Abandonment was the common standard used during the creation of most Indian reservations in the west and, it also remains an

¹¹ In *Walton III*, the court determined that where there are no governing federal law principles, "[i]t is appropriate to look to state law for guidance." *Walton III*, 752 F.2d at 400. The *Walton III* court then relied upon Washington State's law pertaining to reasonable diligence in determining Walton's claim.

applicable standard for determining loss of water rights in several states that follow the doctrine of prior appropriation. The bases for OWRD's conclusions are described in detail below.

The *Walton* decisions adopted the prior appropriation doctrine and relied heavily on state law in determining the requirements of a *Walton* right. The court explicitly acknowledged its reliance on state law in incorporating the principles of reasonable diligence and water duty in determining and qualifying *Walton* rights. *Colville Confederated Tribes v. Walton*, 752 F.2d 397, 402-403 (1985) (*Walton III*). Given the courts' dependence on state law principles, the Department concludes it is similarly appropriate to look to state law for guidance in defining the continued use requirement.

It is a generally accepted principle of the doctrine of prior appropriation that water rights may be lost through nonuse. Most states that apply this doctrine determine nonuse based on the concepts of abandonment or forfeiture, or a combination of both. In order to find that a water right has been abandoned, "there must be a concurrence of the intention to abandon it and actual failure in its use." *Hough v. Porter*, 51 Or. 318, 434 (1909). The burden of establishing abandonment lies with the proponent of the abandonment (in this case, the contestant(s) to the claim). *Id.*

In contrast, forfeiture is based solely on the nonuse of water over a statutorily defined period of time, regardless of the intent of the water right holder. In Oregon, a rebuttable presumption of forfeiture is established "whenever the owner of a perfected and developed water right ceases or fails to use all or part of the water appropriated for a period of five successive years." ORS 540.610. The burden of proving this rebuttable presumption lies with the proponent of the forfeiture. *Rencken v. Young*, 300 Or. 352, 364 (1985).

In Oregon, forfeiture applies to "perfected and developed" water rights. A "developed" right is one that has been applied to the intended beneficial use. In *Green v. Wheeler*, the court defined the term "perfected" as it is used in Oregon's Water Code. 254 Or 424 (1969) (*Green*). The court explained that *prior* to the enactment of the Water Code appropriation of water was sufficient to establish a "vested" interest in the use of water. *Id.* at 430. In contrast, a water right acquired under the Water Code is not "vested" until the "appropriation has been perfected." *Id.* "Perfection," as defined by the court, requires appropriation of water, the fulfillment of conditions specified in or authorized by the Water Code, and a determination by OWRD that the right has been perfected. *Id.* at 430-31. *See also Hale v. Water Resources Department*, 184 Or App 36, 41 (2002) (citing to *Green*, and holding that "whether an appropriation has been 'perfected' within the meaning of ORS 537.250(1) is expressly left 'to the satisfaction of the department'").

Perfection then, requires an administrative determination of the validity of the right. An unadjudicated right, which has not been subject to administrative determination, is not a perfected right for the purposes of ORS 540.610. Although the court in *Green* did not cite specifically to ORS 540.610, there are no textual or contextual bases for interpreting "perfected," as that term is used in ORS 540.610, differently than *Green* interpreted it.

When a water right has been perfected, ORS 540.610 applies and supersedes the common-law abandonment doctrine. *Rencken v. Young*, 300 Or at 361. However, where a common-law doctrine has not been superseded by statute, it remains applicable. *See, e.g., Olsen v. Deschutes County*, 204 Or App 7, 13-17 (2006). Because ORS 540.610 does not apply to unadjudicated rights initiated under state law, the abandonment doctrine does.

OWRD concludes that abandonment is the appropriate doctrine to be applied to unadjudicated *Walton* rights in Oregon. First, it is the doctrine that is applied to Oregon's unadjudicated, state-initiated water rights. Consistency with state water law principles has significant value. The court in *United States v. Anderson*, found a Congressional policy of ensuring the "full economic benefit" of the allotment to the Indian allottee. 736 F2d 1358, 1362 (9th Cir 1984). This policy was the rationale behind allowing Indian allottees to transfer their water rights to non-Indians. Non-Indian purchasers of Indian allotments would have understood *Walton* rights in terms of the benefits and conditions of state-initiated water rights. The possibility that *Walton* rights would have different, unknown benefits and restrictions would have caused non-Indian purchasers of Indian allotments to account for this risk by discounting the value of the allotment. This discounting process would interfere with the intent to provide Indian allottees with the full economic benefit of their allotments.

Second, the abandonment doctrine is the proper standard to apply to unadjudicated *Walton* rights because abandonment was the common standard during the time period in which most Indian reservations were established in the western states (the date of reservation is considered to be the date of appropriation, and thus the priority date for *Walton* rights). *See* 2 Waters and Water Rights § 17.03 (Robert E. Beck ed., 1991 Edition, 2001). Although the terms and conditions of water rights can be changed in certain respects after the priority date for the right, the general rule is that terms and conditions remain consistent through time.

Third, abandonment remains an applicable standard for determining loss of water rights in several states with prior appropriation systems. *See* 2 Waters and Water Rights § 17.03 (Robert E. Beck ed., 1991 Edition, 2001). Although forfeiture is now the more common standard, there is no universally consistent standard in these western states. Given the above reasons, OWRD concludes that abandonment is the more appropriate doctrine for determining whether an unadjudicated *Walton* right has been lost as a result of nonuse.

Finally, OWRD notes two limits on the applicability of abandonment in the context of *Walton* rights. First, abandonment is only applicable where a *Walton* right has been developed, but then suffers a period of nonuse. In cases where a *Walton* right has remained undeveloped for a lengthy period following transfer from Indian ownership, the reasonable diligence principle, and not abandonment, will apply. Second, OWRD concludes only that abandonment applies to unadjudicated *Walton* rights in Oregon. OWRD expresses no opinion as to whether abandonment or forfeiture applies following an order of determination or a decree determining a *Walton* right.

VII. Use of Natural Overflow as the Basis of a *Walton* Right

Oregon law provides that while natural overflow as a method of irrigation is only a privilege, beneficial use of natural overflow may nonetheless provide a basis for a vested water right. OWRD concludes that this principle is equally applicable to *Walton* claims made subject to the Department's jurisdiction. Because the *Walton* cases did not create federal law on the subject of natural overflow, OWRD appropriately relies on Oregon law.

"Natural overflow" refers to the presence of surface water (water that is above-ground) without the use of an artificial diversion structure. In Oregon, beneficial use of natural overflow is sufficient to acquire a vested pre-1909 water right. *Warner Valley Stock Co. v. Lynch*, 215 Or. 523, 538 (1959). To avoid the waste of water, Oregon courts have held that the natural overflow diversion method is only a privilege. This does not negate the right, but does limit the appropriator's ability to demand delivery of water by the natural overflow method. Specifically, for any portions of any water rights recognized in the Findings of Fact and Order of Determination that continue to employ natural overflow as a method of irrigation, the holders of such rights cannot make a call on water appropriated under any other water rights. The reasoning behind Oregon's doctrine is sound. It allows the acquisition of a water right in a circumstance where an artificial point of diversion is unnecessary, while conditioning the right to prevent unreasonable impositions on the rights of other water users.

The *Walton* litigation did not involve natural overflow; rather, it concerned the method of subirrigation. *Colville Confederated Tribes v. Walton*, 752 F.2d 397 (1985) (*Walton III*). "Subirrigation" describes the use of ground water (water found below the surface) for irrigation without the pumping of water from a well. There are two types of subirrigation. The first is uncontrolled, or "natural" subirrigation. This is subirrigation that occurs due to an unusually high groundwater table or seepage from a nearby stream or lake, for example. The second type of subirrigation is controlled subirrigation. This is subirrigation that is created by an artificial diversion work (e.g., a dam that causes water levels to rise and increases the area of land being subirrigated). The subirrigation at issue in the *Walton* cases was naturally occurring subirrigation. Unlike a user of natural subirrigation, a beneficial user of natural overflow has the ability to control the water by creating a diversion, thus preventing natural overflow on the property. A user of natural overflow can take steps to improve the efficiency of the irrigation; a beneficial user of natural subirrigation cannot.

To the extent that *Walton III* holds that subirrigation may not form the basis for a *Walton* right, it is not at all clear that the court would have extended this holding to apply to natural overflow. It is appropriate for OWRD to rely on Oregon law because the *Walton* cases did not create federal law on the subject of natural overflow.

Even if the *Walton III* court had intended its discussion of subirrigation to apply to natural overflow, there is no indication that the court intended to create federal law on the issue. Instead, the analysis in *Walton III* pertaining to subirrigation applies Washington state law. Where subirrigation is discussed, nearly all the cases cited by the court are Washington state court decisions. *Walton III*, 752 F.2d 397, 402-403. Even the reference to a federal district court opinion cites both to the opinion and the "cases cited therein interpreting Washington law." *Id.* at 402 (emphasis added). Under Washington law, a diversion is a required element of a valid

appropriation. See *Ellis v. Pomeroy Improvement Co.*, 21 P. 27, 29 (1889) (requiring an “open, physical demonstration” of intent to take water for some valuable use). Because subirrigation and natural overflow do not require a diversion, they may not form the basis for a valid appropriation under Washington law.

Had the *Walton III* court intended to create federal law on the issue of natural overflow, it would have considered – or at least mentioned – the law of other western states, which are split on the question. The court in *Walton III* gave no indication that it intended to use Washington law to form the basis for federal law on natural overflow or subirrigation. Indeed, it would have been inappropriate for the court to simply rely on Washington law in creating federal law, at least with respect to use of natural overflow. The western states are divided on this issue. Colorado and Montana, in addition to Oregon, have determined that natural overflow could form the basis of valid appropriation for irrigation use initiated prior to the enactment of the respective state’s modern water code. See *Matter of the Adjudication of Missouri River Drainage Area*, 55 P.3d 396, 406 (Mont. 2002); *Humphreys Tunnel & Mining Co. v. Frank*, 105 P. 1093, 1095 (Colo. 1909).¹²

Where no governing federal law principles exist with respect to an issue related to the determination of a *Walton* right, “[i]t is appropriate to look to state law for guidance.” *Walton III*, 752 F.2d at 400. The *Walton* cases were based on Washington state law and did not create federal law with respect to either beneficial use of natural overflow or subirrigation. Therefore, the Department relies on Oregon law principles governing natural overflow as a method of beneficial use.¹³

More specifically, the Department relies on Oregon’s pre-1909 principles governing natural overflow as a method of beneficial use. The law relevant to the determination of whether a claimant has established a vested water right is, generally speaking, the law in place at the time the appropriation is initiated, rather than when water is first applied to beneficial use. See 539.010(4).¹⁴

Under Oregon’s pre-1909 common law, an appropriator was entitled to relate the priority date of the right back to the date of first intent to appropriate. Therefore, if all other elements are proven for a *Walton* claim, those claimants are entitled to relate the priority date of their rights

¹² Nevada, New Mexico, and Washington have required a manmade diversion for irrigation use. See *Steptoe Livestock Co. v. Gulley*, 295 P 772, 774-775 (Nev. 1931); *State ex rel. Reynolds v. Miranda*, 493 P.2d 409, 411 (N.M. 1972).

¹³ The Department does not necessarily intend that Oregon law pertaining to natural overflow be applied to every state in which the *Walton* claims are heard. There is nothing in the *Walton* doctrine that requires the creation of federal common law governing every single attribute of *Walton* rights. Instead, where appropriate, a federal court may choose to apply some aspects of the state law in which the water right claim is made. This is the approach the *Walton III* court took with respect to subirrigation.

¹⁴ ORS 539.010(4) provides, in part: “The right of any person to take and use water shall not be impaired or affected by any provisions of the Water Rights Act (as defined in ORS 537.010) where appropriations were initiated prior to February 24, 1909, and such appropriators, their heirs, successors or assigns did, in good faith and compliance with the laws then existing, commence the construction of works for the application of the water so appropriated to a beneficial use, and thereafter prosecuted such work diligently and continuously to completion” (emphasis added).

back to October 16, 1864, the date of the Klamath Treaty. The Klamath Treaty provides the best analog to the “intent” element of Oregon’s pre-1909 common law. Through the Klamath Treaty, Congress effectively established its intent to reserve water for certain uses by the Klamath Tribes and their members.¹⁵ Thus, it is appropriate to apply pre-1909 principles with respect to the issue of the natural overflow method.

As described in detail below, Oregon law provides while natural overflow as a method of irrigation is only a privilege, beneficial use of natural overflow may nonetheless give rise to a vested water right, where the appropriation was initiated prior to the enactment of the Water Code in 1909.

A “diversion from the natural channel by means of a ditch, canal or other structure,” *Silvies River*, 115 Or 27, 64-65 (1925), or the “construction of works,” ORS 539.010(4), for the diversion and delivery of water to a beneficial use is generally a required element of a pre-1909 water right. There is, however, an exception to this requirement. No initial diversion is required where the appropriator’s land is “naturally irrigated” and the appropriator “in some substantial way indicates that it is his intention to reap the benefit of the fruit of the irrigation.” *Id.* at 66. In such case, the priority date is “deemed to be when the proprietor of the land accepts the gift made by nature...” *Id.*

The *Silvies River* court described the reasoning behind this exception to the diversion requirement:

[D]iversion of the water has a special application or exception to much of the land in the Harney Valley. It involves the matter of the natural irrigation of the land. Nature has been very generous to the Harney Valley in this respect. With practically no artificial works for irrigation, thousands of acres are naturally watered.... It would seem to be fair and equitable, if not absolutely essential, that such date be deemed to be when the proprietor of the land accepts the gift made by nature, and garners the produce of the irrigation by harvesting or utilizing the crops grown on the land, or making preparation for so doing, or in some substantial way indicated that it is his intention to reap the benefit of the fruit of the irrigation. When no “ditch, canal, or other structure” is necessary to divert the water from its natural channel, the law does not vainly require such works, prior to an appropriation. We do not intend to suggest that in most cases the building of some kind of an irrigation system is not *requisite after the appropriation is made* in order to effect an economical beneficial use of such water and prevent waste. This should be accomplished within a reasonable time as circumstances permit and necessities require....

Id. (Emphasis added). This principle was affirmed and clarified in *Warner Valley Stock Co. v. Lynch*, 215 Or 523 (1959), which specifically states that it is “consistent” with the statements of

¹⁵ As described above, one of the Treaty’s primary purposes was to promote an agrarian lifestyle among members of the Klamath Tribes. The amount of water impliedly reserved was to satisfy both present and future needs, measured to irrigate all “practicably irrigable lands” on the reservation.

the Oregon Supreme Court in *Silvies River*, 115 Or 27 (1925), as well as *In re Willow Creek*, 74 Or 592 (1915), and *Hough v. Porter*, 51 Or 318 (1908).

The *Warner Valley Stock Co.* case involved interpretation of the findings and order of determination as well as the 1929 decree for the waters of Warner Lakes and their tributaries. 215 Or at 532-33. Plaintiffs filed the suit after the Lake County Circuit Court directed the State Engineer to issue permits to Warner Valley Stock Company for the construction of two reservoirs in Warner Valley. *Id.* at 526. Plaintiffs, who had water rights based on natural overflow from Hart Lake under the 1929 decree, argued the permits would violate their vested water rights. *Id.* at 532. Based on the 1929 decree, the Supreme Court affirmed the circuit court's decision that the method of diversion by overflow was wasteful and, accordingly, held "the *method of diversion* by way of natural over-flow is a privilege only and cannot be insisted upon by the objectors if it interferes with the appropriation by others of the waters for a beneficial use."¹⁶ *Id.* at 537 (Emphasis added). It is important to note that the Warner Valley court, consistent with other court decisions, such as *Hough v. Porter* and *Silvies River*, specifically states only that the *method* of diversion by natural overflow cannot be insisted upon where it is wasteful. These decisions still allow an appropriator to establish a water right for use of that quantity of water obtained by beneficial use. In fact, the *Warner Valley* court went on to emphasize that the appellants had acquired vested water rights that they retained after the court's decision. *Id.* at 538.

Similarly, in *Masterson v. Pacific Livestock Company*, the court found that prior to the adjudication, the defendants had only irrigated their lands by means of natural overflow. 144 Or 397, 401-2 (1933). The *Masterson* court found that, although the decree had not provided the quantity of water to be taken under the right, the natural irrigation equaled no more than five acres "in the regular way." 144 Or at 406-8.

Thus, the case law indicates that appropriators may acquire pre-1909 water rights using natural overflow as the method of diversion. To avoid the waste of water, Oregon courts have held that the natural overflow diversion method is only a privilege. This does not negate the right, but does limit the appropriator's ability to demand delivery of water by the natural overflow method. Specifically, for any portions of any water rights recognized in the Findings of Fact and Order of Determination that continue to employ natural overflow as a method of irrigation, the holders of such rights cannot make a call on water appropriated under any other water rights. Further, any future conversion from beneficial use of water by natural overflow to beneficial use of the same water from a system relying on a point(s) of diversion will be considered a change in point of diversion subject to approval of a transfer of water right in compliance with the provisions of ORS 540.505 to 540.587.

VIII. Use of Subirrigation as the Basis of a *Walton* Right

¹⁶ In 1909, the Oregon Supreme Court reached a similar conclusion in *Hough v. Porter*, 51 Or 318, 420 (1909). The *Hough* court found that "wasteful *methods* so common with early settlers can...be deemed only a privilege permitted merely because it could be exercised without substantial injury to any one; and *no right to such methods of use was acquired thereby.*" *Id.* (Emphasis added.)

“Subirrigation” describes the use of ground water (water found below the surface) for irrigation without the pumping of water from a well. There are two types of subirrigation. The first is uncontrolled, or “natural” subirrigation. This is subirrigation that occurs due to an unusually high groundwater table or seepage from a nearby stream or lake, for example. A user of this type of subirrigation has no means of controlling the subirrigation or improving the efficiency of the irrigation. Since the user of subirrigation does not have the ability to improve the method of irrigation, the logic of *Warner Valley* dictates that subirrigation may never form the basis for a vested water right. As a result, adjudication claims based on natural subirrigation are denied.

The second type of subirrigation is controlled subirrigation. This is subirrigation that is created by an artificial diversion work (e.g., a dam that causes water levels to rise and increases the area of land being subirrigated). In such a case, the irrigation is being caused by a diversion, and, depending on whether the other elements of a water right claim are met, may form the basis for a *Walton* right.

B-4 GENERAL CONCLUSIONS OF LAW CONCERNING KLAMATH TERMINATION ACT CLAIMS

I. Introduction

Klamath Termination Act (KTA) claims are closely related to *Walton* claims. Like *Walton* claims, KTA claims are claims made by successors in interest to lands that were part of the Klamath Indian Reservation (Reservation), and are based on one of the primary purposes of the Klamath Treaty of 1864.

The sole distinction between *Walton* claims and KTA claims is that KTA claims are for lands that were a part of the Reservation, but were unallotted at the time of the termination of the Reservation pursuant to the KTA. The question is whether or not the non-Indian purchasers of these lands acquired the lands’ share of the Reservation’s “practicably irrigable acreage” (PIA). See *Arizona v. California*, 373 US 546 (1963) (establishing the PIA standard for determining agricultural water rights on allotted lands within Indian reservations).

The general rule is that where unallotted Indian tribal lands were returned to the public domain and transferred to a non-Indian under a homestead or land grant program, no portion of an Indian tribe’s reserved water right was transferred with the land. *United States v. Anderson*, 736 F2d 1358 (9th Cir 1984). The KTA provides an exception to the rule. Based on the specific language of the KTA, Congress expressly intended that a share of the Klamath Tribes’ consumptive water rights associated with the unallotted Klamath Tribal lands and transferred pursuant to the express language of the KTA may be sold with the lands. The definitions of “Lands” and “Tribal property” in the KTA state as follows:

“Lands” means real property, interests therein, or improvements thereon, and include water rights.

“Tribal property” means any real or personal property, *including water rights*, or any interest in real or personal property, that belongs to the tribe and either is held by the United States in trust for the tribe or is subject to a restriction against alienation imposed by the United States.

25 USC § 564a (Emphasis added.) Further, the KTA specifically provided that the Klamath Tribal lands were to be appraised, sold, and the proceeds of the sale distributed among the members of the Tribes. 25 USC § 564d.

Based on the above language, Congress intended the appurtenant Klamath Tribes’ consumptive water rights to be included in a conveyance of tribal lands sold pursuant to the KTA. By including water rights in the definition of the “lands” and “tribal property” that were to be transferred pursuant to the Act, Congress expressly indicated that the sale of the Klamath Tribal lands under the KTA is to include appurtenant water rights held by the Tribes.

Although this is an issue of first impression, OWRD concludes that the elements and standards applicable to a *Walton* claim are applicable to a KTA claim, with the exception that a KTA claimant is required to show that he is a successor in interest to ownership of former unallotted lands within the Reservation. The KTA does not itself create a separate standard for the determination of KTA claims, and no arguments as to why KTA claims should be subject to a separate standard have been advanced.

The elements of a KTA claim are provided below. Because the elements of a KTA claim, with the single exception described above, are identical to the elements of a *Walton* claim, OWRD’s General Conclusions of Law Concerning *Walton* Claims is equally applicable to KTA claims, and is incorporated as if set forth fully herein.

II. Elements of a KTA Claim

1. The claim is for water use on unallotted lands that were formerly part of the Klamath Indian Reservation;
2. The unallotted lands were transferred from the Klamath Tribes to a non-Indian purchaser pursuant to the express language of the Klamath Termination Act, and the claimant is the non-Indian purchaser or a successor in interest to the non-Indian purchaser;
3. The amount of water claimed for irrigation is based on the number of acres under irrigation at the time of transfer from Indian ownership; except that:
4. The claim may include water use based on undeveloped irrigable land, to the extent that the additional water use was developed and put to beneficial use with reasonable diligence following transfer from Indian ownership.

B-5. GENERAL CONCLUSIONS OF LAW CONCERNING FEDERAL RESERVED WATER RIGHTS¹⁷

When the United States reserves land that it owns for particular purposes, it implicitly reserves sufficient water to accomplish those purposes. *Winters v. United States*, 207 US 564, 577 (1908). These rights are commonly referred to as “federal reserved water rights.” Federal reserved water rights are limited to “only that amount of water necessary to fulfill the purpose of the reservation, no more.” *Cappaert v. United States*, 426 US 128, 141 (1976). In addition, water is reserved only to meet the “primary” purpose of the reservation, not “secondary” purposes. *United States v. New Mexico*, 438 US 696, 715 (1978). Evaluation of a claim based on an implied reservation of water requires examination of the specific purposes for which the land was reserved, and a determination that the water is necessary to accomplish those purposes. *Id.* at 700, 702. The primary purposes of a federal reservation are determined by examining the legislation or executive order that established the reservation. *See United States v. New Mexico*, 438 US 696 (1978). The United States may also expressly reserve water for particular purposes. The priority date of a federal reserved water right is the date of the reservation of the land owned by the United States. *Cappaert*, 426 US at 138.

To summarize, in order to establish a federal reserved water right, the United States has the burden of proving the following elements by a preponderance of the evidence:

1. The United States owns the claimed place of use for the claimed water rights.
2. The date of the reservation of land owned by the United States.
3. The primary purpose(s) meant to be served by the reservation of land.
4. The reservation of land included an express or implied reservation of water.
5. The quantity of water necessary to fulfill the primary purpose(s) of the reservation.

See, e.g., Cappaert v. United States, 426 US 128, 138 (1976); *United States v. New Mexico*, 438 US 696, 715 (1978).

B-6. GENERAL CONCLUSIONS OF LAW CONCERNING THE 1897 ORGANIC ACT

I. Federal Reserved Water Rights Generally

¹⁷ These general conclusions do not pertain to claims filed by the Klamath Tribes or the United States as trustee for the Klamath Tribes concerning water rights deriving from the Treaty of 1864. Conclusions of law pertaining to those claims are included in the claims’ partial final orders of determination.

When the United States reserves land that it owns for particular purposes, it implicitly reserves sufficient water to accomplish those purposes. *Winters v. United States*, 207 US 564, 577 (1908). These rights are commonly referred to as “federal reserved water rights.” Federal reserved water rights are limited to “only that amount of water necessary to fulfill the purpose of the reservation, no more.” *Cappaert v. United States*, 426 US 128, 141 (1976). In addition, water is reserved only to meet the “primary” purpose of the reservation, not “secondary” purposes. *United States v. New Mexico*, 438 US 696, 715 (1978). Evaluation of a claim based on an implied reservation of water requires examination of the specific purposes for which the land was reserved, and a determination that the water is necessary to accomplish those purposes. *Id.* at 700, 702. The primary purposes of a federal reservation are determined by examining the legislation or executive order that established the reservation. *See United States v. New Mexico*, 438 US 696 (1978). The United States may also expressly reserve water for particular purposes. The priority date of a federal reserved water right is the date of the reservation of the land owned by the United States. *Cappaert*, 426 US at 138.

To summarize, in order to establish a federal reserved water right, the United States has the burden of proving the following elements by a preponderance of the evidence:

1. The United States owns the claimed place of use for the claimed water rights.
2. The date of the reservation of land owned by the United States.
3. The primary purpose(s) meant to be served by the reservation of land.
4. The reservation of land included an express or implied reservation of water.
5. The quantity of water necessary to fulfill the primary purpose(s) of the reservation.

See, e.g., Cappaert v. United States, 426 US 128, 138 (1976); *United States v. New Mexico*, 438 US 696, 715 (1978).

II. The 1897 Organic Act

The 1897 Organic Act, 16 USC §§ 471a-539k, authorized the President to establish national forests. The Organic Act provides:

No national forest shall be established, except to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States * * *

16 USC § 475.

The Organic Act sets forth two primary purposes for which water may be claimed: 1) to
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secure favorable conditions of water flows; and 2) to furnish a continuous supply of timber. *See also New Mexico*, 438 US at 718 (“Congress intended that water would be reserved [under the Organic Act] only where necessary to preserve the timber or to secure favorable water flows for private and public uses under state law”). The specific purposes of use claimed by the Forest Service must be necessary to serve the primary purposes listed here.

B-7 GENERAL CONCLUSIONS OF LAW CONCERNING PWR-107 CLAIMS

I. Federal Reserved Water Rights Generally

When the United States reserves land that it owns for particular purposes, it implicitly reserves sufficient water to accomplish those purposes. *Winters v. United States*, 207 US 564, 577 (1908). These rights are commonly referred to as “federal reserved water rights.” Federal reserved water rights are limited to “only that amount of water necessary to fulfill the purpose of the reservation, no more.” *Cappaert v. United States*, 426 US 128, 141 (1976). In addition, water is reserved only to meet the “primary” purpose of the reservation, not “secondary” purposes. *United States v. New Mexico*, 438 US 696, 715 (1978). Evaluation of a claim based on an implied reservation of water requires examination of the specific purposes for which the land was reserved, and a determination that the water is necessary to accomplish those purposes. *Id.* at 700, 702. The primary purposes of a federal reservation are determined by examining the legislation or executive order that established the reservation. *See United States v. New Mexico*, 438 US 696 (1978). The United States may also expressly reserve water for particular purposes. The priority date of a federal reserved water right is the date of the reservation of the land owned by the United States. *Cappaert*, 426 US at 138.

To summarize, in order to establish a federal reserved water right, the United States has the burden of proving the following elements by a preponderance of the evidence:

1. The United States owns the claimed place of use for the claimed water rights.
2. The date of the reservation of land owned by the United States.
3. The primary purpose(s) meant to be served by the reservation of land.
4. The reservation of land included an express or implied reservation of water.
5. The quantity of water necessary to fulfill the primary purpose(s) of the reservation.

See, e.g., Cappaert v. United States, 426 US 128, 138 (1976); *United States v. New Mexico*, 438 US 696, 715 (1978).

II. Public Water Reserve No. 107

The Bureau of Land Management (BLM) filed several claims based on the “Public Water Reserve No.107” for human and animal consumption at water holes.

In 1926 President Calvin Coolidge signed an Executive Order entitled “Public Water Reserve No. 107” (PWR 107). 43 CFR § 2321.1-19 (a). PWR 107 provides:

It is hereby ordered that every smallest legal subdivision of public land surveys which is vacant, unappropriated, unreserved public land and contains a spring or water hole, and all land within one quarter of a mile of every spring or water hole located on unsurveyed public land, be and the same is hereby withdrawn from settlement, location, sale or entry, and reserved for public use in accordance with the provisions of Section 10 of the Act of December 29, 1916.

The Executive Order was authorized under the Stock Raising Homestead Act (SHRA). 43 USC §§ 218-219, 222, 291-302. This Act authorized the President to reserve lands containing waterholes or other bodies of water needed or used by the public for watering purposes. The Secretary of the Interior’s recommendation to the president stated:

The control of water in the semi-arid regions of the west means the control of the surrounding grazing areas, possibly in some regions millions of acres, and in view of the pending bill to authorize the leasing of grazing lands upon unreserved public domain, it is believed important to retain the title to and supervision of such spring and water holes on the unreserved public domain as have not already been appropriated.

Letter of April 17, 1926 from Hubert Work, Secretary of the interior to Calvin Coolidge.

The United States made claims under this Executive Order in adjudications in Colorado and Idaho, and the Supreme Courts of those states recognized those claims. The Colorado Supreme Court stated: “Reserved water from public springs and water holes is available for the purposes of human and animal consumption in the amount necessary to prevent monopolization of the water resources.” *United States v. City and County of Denver*, 656 P2d 1, 31 (Colo. 1982). The Idaho Supreme Court came to a similar conclusion. *In the Matter of SRBA - Basin Wide Issue #9*, 959 P2d 449 (Idaho 1998), *cert. den.*, *Idaho v. United States*, 119 S Ct 1158 (1999); *cert. den.*, *Hoagland v. United States*, 119 S Ct 1158 (1999). OWRD concludes that the reasoning in these cases is correct. Therefore, OWRD concludes that water is reserved under PWR 107 for the primary purposes of stock watering and human consumption and carries a priority date of April 17, 1926.

B-8. GENERAL CONCLUSIONS OF LAW CONCERNING ACQUIRED LANDS

In certain claims in the Klamath River Basin Adjudication (Adjudication), the United States has claimed a federal reserved water right for land formerly in the historic public domain that was conveyed into private ownership and later reacquired by the United States and reserved for specific purposes. OWRD concludes that the period of private ownership does not prevent a

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successful federal reserved water right claim if the other elements of the claim are established. The priority date of any such right is the date of reacquisition or reservation, whichever is later.

The term “public domain lands” typically refers to land that was acquired by various methods by the United States in the 18th and 19th centuries but that had never been reserved by the United States for any specific purposes; such land was, in that sense, as yet *unreserved*. This land is referred to herein as the “historic public domain.” In defining the federal reserved water rights doctrine, the United States Supreme Court has referred to land affected by the doctrine as land withdrawn “from the public domain.” See, e.g., *Cappaert v. United States*, 426 US 128, 139, 96 S Ct 2062, 48 L Ed 2d 523 (1976) (federal reserved water rights can be implied “when the federal government *withdraws its land from the public domain* and reserves it for a specific purpose”); *United States v. Eagle County*, 401 US 520, 522, 91 S Ct 998, 28 L Ed 2d 278 (1971) (“it is clear from our cases that the United States often has reserved water rights based on *withdrawals from the public domain*”).

In the watershed cases on the federal reserved water rights doctrine, the land in question had been directly reserved from the historic public domain. Most cases in which the doctrine of federal reserved water rights has been applied have also involved federal withdrawals of land directly from the historic public domain, accompanied by the simultaneous reservation of that land for specific purposes. *Winters v. United States*, 207 US 564, 576, 28 S Ct 207, 52 L Ed 340 (1908); *Arizona v. California*, 373 US 546, 596, 83 S Ct 1468, 10 L Ed 2d 542 (1963); *Cappaert*, 426 US at 139; *New Mexico*, 438 US at 696. The implied federal reserved water rights in such cases stemmed from the need for water to effectuate those specific purposes. *Id.*

The issue is whether land must always be *directly* withdrawn “from the public domain” at the time of the reservation in order for the United States to claim a federal reserved water right, or whether the United States may acquire land from private ownership and claim a federal reserved water right, when the United States has reserved the land for a specific purpose and the water right is necessary to effectuate the specific purpose of the reservation.

United States v. Anderson, 736 F2d 1358 (9th Cir 1984) comes the closest to squarely addressing the issue in question. *Anderson* involved the Spokane Indian Reservation. After creation of that Reservation, the United States classified some of the Reservation land as “excess” land and opened it to homesteading, a form of private ownership by non-tribal members. The United States subsequently reacquired some of the homesteaded land, reserved it for tribal use, and placed the reserved land back in trust for the Spokane Tribe.

The Ninth Circuit held that the United States could reserve water rights on the land with a priority date as of the later date of reacquisition and re-reservation. In reaching that conclusion, the court acknowledged that the homesteaders had not acquired any water rights along with their acquisition of land. There were therefore no existing water rights for the United States to acquire when it reacquired the homesteaded land, and hence the water rights needed for the re-reserved land had to be created by implication. *Id.* at 1363.

In reaching its conclusion, the court characterized the reacquired and re-reserved lands as “analogous” to “a newly created federal reservation.” *Id.* at 1363. The court reasoned that, “on return of the property to tribal status, it becomes necessary to utilize the *Winters* doctrine to assure that the tribe has sufficient water to ‘fulfill the very purpose for which [the] reservation was created.’” *Id.*

Anderson involved tribal land that had previously been reserved and was later re-reserved from private ownership. The land at issue in *Anderson* had previously been reserved for a specific purpose (the Reservation) before the United States opened the lands for conveyance into private ownership. In that sense, the land involved in *Anderson* was not only reacquired but also re-reserved for a similar, tribal purpose. In comparison, the reacquired lands at issue in the Klamath adjudication have been reserved for purposes unrelated to any previous reservation of the land.¹⁸

But that distinction does not appear to make a difference. The *Anderson* court gave the federal reserved water rights a priority date as of the second reservation, indicating that it was the re-reservation that was the operative event, not the timing or purpose of a previous reservation. The second reservation for a specific purpose established the right to claim a federal reserved water right with a later priority date, regardless of the intervening private ownership.

Anderson may not be completely dispositive of the issue, both because of the factual circumstances of the case and because *Anderson* did not directly address the United States Supreme Court’s characterization of federal reserved water rights as being for land “reserved from the public domain.” Nonetheless, the *Anderson* court’s reasoning indicates that the fundamental concept of a federal reserved right does not depend on the nature of the land from which the land is withdrawn, but rather on the reservation of land for specific purposes by the United States where a supply of water is needed to effectuate the specific purposes of the reservation.

B-9. GENERAL CONCLUSIONS OF LAW CONCERNING AMENDMENT OF CLAIMS

The statutes and rules governing the Klamath River Basin Adjudication (Adjudication) impose limits on the amendment of Adjudication claims. Specifically, ORS 539.210 prohibits upward amendments of claim attributes after the applicable deadline for the filing of claims. OAR 690-030-0085 provides additional limits on the amendment of claims after the period for Open Inspection of claims in the Adjudication commenced.¹⁹ OWRD describes these limits in detail below.

¹⁸ Some of the reacquired lands may have previously been a part of the Klamath Indian Reservation, while some do not appear to have previously been part of any federal reservation of land for a specific purpose.

¹⁹ As described in detail below, Open Inspection allowed Adjudication claimants and all potential contestants to inspect information in OWRD’s record pertaining to Adjudication claims and to inspect OWRD’s Preliminary Evaluation of the claims.

I. ORS 539.210

ORS 539.210 provides:

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). OWRD concludes that ORS 539.210 means that Adjudication claimants must file claims by the applicable claim filing deadline (“at the time and in the manner required by law”) or they are estopped from subsequently asserting a claim.²⁰ OWRD also concludes that ORS 539.210 prohibits certain increases in claim terms after the applicable claim filing deadline, because the increases so markedly change the claim as to effectively constitute a new claim made after the applicable claim filing deadline. These changes, which include a claim for a more senior priority date, for a greater quantity of water, or a longer season of use, are therefore not made “at the time and in the manner required by law” and are time-barred by ORS 539.210.

OWRD’s interpretation of ORS 539.210 is required by the plain meaning of the statute. Because ORS 539.210 requires prospective claimants to make a claim “at the time and in the manner required by law” or “be barred and estopped from subsequently asserting” a claim, OWRD must distinguish between claim amendments that are allowed after the claim filing deadline, and “new” claims that are time barred.

The determination of whether a change to the terms of a claim constitutes an untimely “new” claim depends on the attribute(s) of the claim that a claimant wishes to modify. The attributes of a water right claim include the priority date, the quantity (i.e., the rate and duty of water use), the place of use, the purpose of use, the season of use, and the point(s) of diversion. If claimants were freely allowed to amend any and all of these attributes after the claim filing deadline, a claim would essentially become an empty shell, to be filled at a later time with whatever attributes a claimant might desire. This would allow a claimant to substitute an unrelated claim for the claim initially (and timely) filed. For example, consider a claim timely filed with an 1880 priority date for the use of water from the Williamson River on a parcel of land located adjacent to that river. After the claim filing deadline, the claimant wants to “amend” the claim to an 1870 priority date for the use of water from the Wood River on a parcel of land adjacent to the Wood River. This “amendment” is quite obviously a new claim, deriving from a separate appropriation of water - with an earlier date of appropriation, a different source and a

²⁰ Pursuant to ORS 539.040, OWRD has the authority to set the claim filing deadline and to allow for extensions to it. As described in the General Findings of Fact, and in certain of the Partial Orders of Determination, extensions were allowed for certain types of claims for a number of reasons, such as pending litigation or the collection of additional information. Claims made by the United States and the Klamath Tribes were subject to an April 30, 1997 deadline. In general, claims made by other entities and individuals were subject to a February 1, 1991 deadline.

completely unrelated place of use. Allowing this “amendment” after the claim filing deadline would render the deadline meaningless, and fail to give effect to the phrase “at the time and in the manner required by law.”

OWRD does not consider all changes to a claim’s attributes after the applicable claim filing deadline to constitute impermissible “new” claims. OWRD concludes that those changes that claim increased water use or that refer to a substantially different event of appropriation are significantly different enough from the original, timely claim as to constitute an impermissible “new” claim. Changes that result in increased water use include an increase to the claimed quantity of water (rate or duty or both), a longer season of use, or an overall larger place of use.²¹ Changes that refer to a substantially different event of appropriation include an earlier priority date, a different purpose of use, or an unrelated place of use.

Certain types of changes to claims after the applicable claim filing deadline do not claim increased water use or refer to a substantially different event of appropriation, and do not constitute impermissible “new” claims. Adjudication claimants may amend their claims after the claim filing deadline by making certain, limited modifications to the location of a place of use without increasing the overall size of the place of use. Claimants may also make changes to the location of a point of diversion or increase the number of claimed points of diversion, as long as the overall claimed quantity of water does not increase.²²

Finally, ORS 539.210 does not prohibit the reduction of any of the attributes of a claim after the applicable claim filing deadline. A reduced claim is tantamount to a partial withdrawal of the original claim. It is not a new claim.

II. OAR 690-030-0085

OAR 690-030-0085 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.²³

The “period for inspection” referred to in this rule is the inspection period identified in ORS 539.090, and is commonly referred to as “Open Inspection.” Open Inspection began on October 4, 1999, and closed on March 31, 2000. The Open Inspection period and the limitations

²¹ Some changes that claim increased water use may also refer to a different event of appropriation.

²² There are other principles of law that may, depending on the circumstances, limit OWRD’s ability to recognize these types of changes, but ORS 539.210 does not.

²³ OAR 690-030-0085 also provides a process for changes to claimed points of diversion following the beginning of open inspection. This process is not at issue in this case.

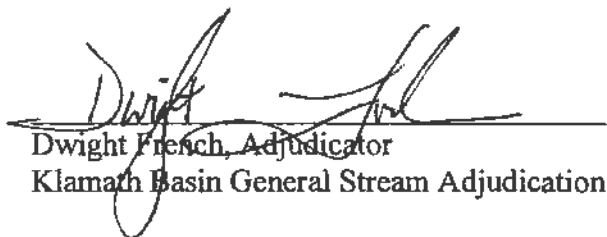
on claim amendments after the beginning of Open Inspection ensure a process where all who may have an interest in the Adjudication are provided an adequate opportunity to determine the nature of the claims made and to determine whether they need to contest any of the claims.

While alterations and amendments of claims were not permitted after October 4, 1999, OWRD does not conclude that downward claim amendments as impermissible "alteration or amendment." Instead, OWRD concludes that downward claim amendments are voluntary partial withdrawals of claims. The reasoning behind this conclusion is sound. Downward amendments do not prejudice potential contestants. By reducing the scope of the claim, downward amendments benefit potential contestants. In addition, it does not make sense to require a claimant to continue claiming a right a part of which the claimant knows it either cannot prove or cannot beneficially use. Therefore, to the extent that a claimant has downwardly amended a claim after the beginning of open inspection, this is treated as a permissible partial withdrawal of the claim, and not an impermissible amendment

C. PARTIAL ORDERS OF DETERMINATION

The Partial Orders of Determination pertaining to the individual Adjudication claims are a part of the Findings of Fact and Order of Determination and are incorporated herein by reference. To the extent a Partial Order of Determination adopts and incorporates by reference portions of an underlying decision document from the proceedings before the Office of Administrative Hearings, including stipulations or settlement agreements, Proposed Orders, Amended Proposed Orders, and Corrected Proposed Orders, those portions of the underlying decision documents are also, by extension hereby incorporated into the Findings of Fact and Order of Determination.

Dated at Salem, Oregon on February 28, 2014



Dwight French, Adjudicator
Klamath Basin General Stream Adjudication

CORRECTED FINDINGS OF FACT AND ORDER OF DETERMINATION – KLAMATH RIVER BASIN GENERAL STREAM ADJUDICATION

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WASHINGTON

COLVILLE CONFEDERATED TRIBES,
Plaintiff,

No. 3421

-vs-

BOYD WALTON, JR., et ux, et al.,
Defendants,

FILED IN THE
U. S. DISTRICT COURT
Eastern District of Washington

AUG 31 1983

STATE OF WASHINGTON,
Defendant/Intervenor,

J. R. FALLOUT, Clerk
Deputy

UNITED STATES OF AMERICA,
Plaintiff,

No. 3831

-vs-

WILLIAM BOYD WALTON, et ux, et al,
and THE STATE OF WASHINGTON,
Defendants.

MEMORANDUM DECISION

The history underlying this action is set forth in
Colville Confederated Tribes v. Walton (Walton I), 460 F. Supp.
1320 (E.D. Wash. 1978), modified and remanded, 647 F.2d 42
(Walton II), (9th Cir.), cert. denied, 454 U.S. 1092 (1981). On
remand, this court is faced with resolution of two major issues.

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1 The first is predominately one of fact:

2 On remand, [the court] will need to determine
3 the number of irrigable acres Walton owns,
4 and the amount of water he appropriated with
5 reasonable diligence in order to determine
6 the extent of his right to share in reserved
7 water.

8 647 F.2d at 51.

9 The second is somewhat more fraught with pure legal
10 overtones which, most observers would agree, tend toward the
11 esoteric.¹ Once having ascertained the amount of irrigable
12 acreage held by defendant and the quantity of water appropriated,
13 it will then be necessary to "calculate the respective rights of
14 the parties," bearing in mind the Tribe's implied reservation of
15 water for maintenance of its fishery. 647 F.2d at 48 & 53.

16 During the course of the most recent hearings,
17 credible testimony was presented in support of the following
18 findings.² Walton's lands passed out of Indian ownership between
19 1921 and 1925. More specifically, the Whams purchased allotment
20 2371 in 1921; 894 in 1923; and 525 in 1925. See also, 460 F.
21 Supp. at 1334, stipulated fact #22. To the north of these
22 allotments was 892, owned by Joe Peters, a member of the Colville
23 Tribe. See area map, id. at 1336. To the south lay 901 and 903
24 owned by the Timentwa family, also members of the Tribe, who
25 irrigated approximately 30 acres utilizing water from
26 No Name Creek. The Whams ran some 100 head of cattle,
and in addition to water diverted for stock, also irrigated about
30 acres employing gravity flow rill method as well as a small

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1 gasoline-powered pump.³ Additionally, because of the unique
2 geological characteristics of this area, allotments 2371 and 894
3 were sub-irrigated at that time and required no application of
4 water.⁴ Sub-irrigated acreage was estimated at about 40.
5 Throughout the 20's and 30's, well prior to the advent of
6 electrical power being brought in, this state of affairs remained
7 more or less stable, with the Whams thus cultivating a total of
8 approximately 70 acres.⁵

9 Walton acquired 2371, 894 and 525 in July of 1948. The
10 following month he applied to the state for a permit to divert
11 1.0 c.f.s. for irrigation of 75 acres.⁶ The next year,
12 after successful negotiations and the commitment of substantial
13 capital, Walton was able to bring electricity into the valley for
14 the first time.

15 The availability of electricity led to the installation
16 of two five-horsepower pumps in the creek which, together with
17 the use of newly available aluminum pipe, allowed Walton to
18 engage in considerably more sprinkler irrigation as opposed to
19 the less efficient rill method. During the period of 1949 and
20 1950, Walton had a minimum of 104 acres under irrigation.⁷ At
21 that point in time, Wilson Walton believed that he potentially
22 had some 155 acres susceptible to irrigation and intended to
23 eventually develop a system capable of delivering sufficient
24 water to accomplish that end. Thereafter, a series of surveys
25 were completed by the Soil Conservation Service and the Bureau of
26 Indian Affairs which established that the Walton land contained

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1 at least 170 acres of potentially irrigable cropland.

2 Amount of Water Appropriated:

3 A two-step inquiry, it is first necessary to determine
4 the amount appropriated, and then ascertain to what extent that
5 quantity was appropriated with reasonable diligence. Prior to
6 culmination of the instant conflict, diversion was not accurately
7 recorded. Thus, there is no way of ascertaining with any degree
8 of precision the exact amount of water beneficially applied.
9 Having quantified the acreage, however, it is a simple matter to
10 work backwards.

11 Judge Neill determined that reasonable irrigation
12 practice required the application of four acre feet per year. No
13 one disputes that Walton obtains a respectable yield from his
14 farming efforts, and thus it is a fair inference that he is
15 applying, and has applied, at least that amount of water
16 minimally necessary for effective crop propagation.⁸ The answer
17 to the first prong of the question is therefore equational in
18 nature. Walton has 170 irrigable acres, and has consistently
19 irrigated at least 104 of these. Each acre requires the applica-
20 tion of four feet per year for sustained productivity. Walton has
21 demonstrated that sustained productivity. Ergo, he has
22 beneficially applied 416 acre feet per year.

23 As far as Walton's diligence is concerned, where an
24 individual, within sixteen months of purchasing land,
25 demonstrates an intention to divert by applying for a permit,
26 expends considerable sums to bring in electricity, designs a

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1 delivery system utilizing the most modern and efficient
2 equipment, undertakes a comprehensive inventory of the
3 suitability of his acreage for crop production by eliciting the
4 aid of the Soil Conservation Service, and then proceeds to
5 actually apply water beneficially, the only conclusion that can
6 be drawn is that diligence is not only reasonable, but
7 expeditious. I have no difficulty finding that Walton exercised
8 reasonable diligence in irrigating a minimum of 104 acres.⁹

9 The Tribe raises the contention, however, that it is a
10 legal impossibility for Walton to establish due diligence unless
11 it can be demonstrated that such diligence was exercised by the
12 original allottee or his immediate grantee, and thereafter
13 preserved by each subsequent non-Indian owner. The argument
14 proceeds as follows. Only the original allottee had a vested
15 right in reserved waters. He could convey that vested, but
16 inchoate, right to his immediate grantee, but in order to perfect
17 that right the grantee himself must exercise reasonable
18 diligence, and that grantee could reconvey that perfected right
19 to a subsequent non-Indian purchaser only to the extent of its
20 perfection by appropriation with due diligence. Stated another
21 way, if the immediate grantee did not exercise due diligence, the
22 inchoate right was lost forever and could not thereafter be
23 revived by a subsequent grantee because that later purchaser
24 would have no inchoate right capable of being perfected.

25 The argument is not without some appeal, and indeed is
26 alluded to in Walton II. In this case, however, the Circuit is

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1 abundantly clear in its mandate: this court is to determine the
2 "amount of water he [Walton] appropriated with reasonable
3 diligence." 647 F.2d at 51 (emphasis supplied). There is no
4 mention whatever of the weight to be accorded performance or
5 non-performance of intervening owners, and yet it is apparent
6 that the Court was well aware that the land had passed out of
7 Indian ownership many years and several grantors removed from
8 Walton's acquisition in 1948.¹⁰ It may well be areas such as this
9 which prompted the Circuit to urge further review. See note 1
10 supra. In any event, this court is unable to conclude that the
11 Circuit would include in its mandate a useless issue.

12 Alternatively, if the performance of intervening owners
13 is relevant, there is ample evidence to conclude that Walton's
14 land was in production throughout most of the period from 1921-25
15 when it passed out of Indian ownership, until 1948 when Walton
16 purchased it. Obviously, it is impossible to quantify the exact
17 acreage in production during the relevant time frame. Those who
18 testified were asked to turn their minds back fifty years and
19 more. Some were asked to recall childhood memories. That the
20 amount of land subject to irrigation cannot now be precisely
21 ascertained is certain, but that the land was in fact in crops,
22 and was in fact irrigated to at least some extent by all of the
23 intervening owners throughout most of the time span at issue, is
24 equally certain.

25 Walton argues that certain practical considerations
26 must necessarily play a role in determining what is reasonable

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1 where diligence in appropriating water is involved. The court is
2 asked to bear in mind that there was a depression throughout the
3 1930's, and that a major war followed; that irrigation equipment
4 was primitive during the 30's and 40's and that irrigation was
5 thus labor-intensive; that aluminum pipe had not yet been
6 perfected; that electricity was non-existent until Walton
7 financed the first powerline into the area in 1949.¹¹ In short,
8 defendant asserts that what is "reasonable" is ascertainable with
9 reference to what is practical, and that the economic realities
10 of life and the then-existing state of the art in agricultural
11 practice cannot be wholly divorced from a "reasonableness"
12 determination. I am persuaded that this position has merit, and
13 that each of the intervening owners exercised diligence in
14 beneficially applying water for agricultural purposes to the
15 maximum extent reasonably possible given prevailing economic and
16 technological conditions. United States v. Big Bend Transit Co.,
17 42 F. Supp. 459, 468-69 (E.D. Wash. 1941) and authorities cited
18 therein.

19 Allocation:

20 Having quantified the number of irrigable acres owned
21 by Walton and the amount of water he appropriated with reasonable
22 diligence, the specific mandate enunciated in Walton II, 647 F.2d
23 at 51, has been satisfied. The more general mandate to
24 "calculate the respective rights of the parties," id. at 53, is a
25 more difficult task. If Walton holds 170 irrigable acres, and
26 has diligently made beneficial application of water from No Name

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1 Creek on 104 of those, and if Tribal members hold 166.6 irrigable
2 acres and are currently irrigating 107.2 of those,¹² and if the
3 respective rights to share in reserved waters are equal in
4 priority, and if any shortfall in available water must be borne
5 ratably, then certain conclusions can be reached with some
6 measure of confidence.

7 Even assuming that the law of the case doctrine would
8 not be binding on this court's factual determinations with
9 respect to those quantifications developed by Judge Neill,
10 nothing presented in evidence would give cause to modify those
11 findings except as mentioned in note 10, supra. In an average
12 year, 1,000 acre feet is available from No Name Creek.¹³ Average
13 duty is four acre feet per year. Walton I, 460 F. Supp. at 1330.
14 Ignoring for the moment the fish hatchery issue, the respective
15 rights of the parties may therefore be tentatively quantified
16 thusly:

17	Walton	104 acres	at 4 acre feet	416 acre feet
18	Other allottees	166.6 acres	" " " "	666.4 " "
				1,082.4 " "

19 Since only 1,000 acre feet are available, however, these respec-
20 tive shares must be ratably reduced. Walton II, 647 F.2d at
21 50-51. The amount of water available represents 92.4% of that
22 potentially reserved. The above figures must therefore be
23 factored by that amount in order to arrive at actual allocation:

24	Walton	416 acre feet (92.4%)	384 acre feet
25	Other allottees	666.4 acre feet (92.4%)	616 " "
			1,000 " "

26 The Tribe, however, as lessee of the other allotments in the

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1 basin, is irrigating only 107.2 acres and, applying a duty of
2 four acre feet, has no present need for more than 428.8 acre feet
3 per year.¹⁴ The final result thus becomes:

4	Walton's allocated share	384 acre feet
5	Other allottees' allocated share	428.8 " "
6	Available for other uses	187.2 " "
		<u>1,000</u> " "

7 Could the court's task be considered completed at this
8 point, everyone could heave a sigh of relief at the prospect of
9 seeing this protracted litigation finally come to a close.
10 Unfortunately, this is not to be, for interjection of the fishery
11 issue throws what might have been a simple exercise in
12 mathematics into a quagmire guaranteeing the Circuit another
13 opportunity to finally quantify allocations as sought by the
14 competing interests herein.

15 It is important to take a conceptual shift in attitude
16 from that exhibited by the parties up to this juncture. It has
17 been all too easy in the past to view this litigation as a
18 contest between Indians and non-Indians. Walton II makes it
19 abundantly clear that this is not the case. Once the threshold
20 issues of the ownership of irrigable acreage and the beneficial
21 application of water thereto with reasonable diligence has been
22 resolved in Walton's favor, he no longer stands in an adversarial
23 posture vis a vis any other individual owner of allotted lands.
24 The battleground, rather, concerns the Tribe as sovereign, and
25 the individual allottees.

26 The Circuit held categorically that the "Colvilles have

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1 a reserved right to the quantity of water necessary to maintain
2 the Omak Lake Fishery." Walton II, 647 F.2d at 48. This
3 conclusion was based on the premise that "[a]n implied
4 reservation of water for an Indian reservation will be found
5 where it is necessary to fulfill the purposes of the
6 reservation." Id. at 46. Applying the test set forth in United
7 States v. New Mexico, 438 U.S. 696 (1978), the Court found that
8 "preservation of the tribe's access to fishing grounds was one
9 purpose for the creation of the Colville Reservation." 647 F.2d
10 at 48. The lesson emerging from this sequential reasoning is
11 that the Tribe has the right to whatever portion of the 1,000
12 acre feet available, up to and including all of it, if required
13 for the maintenance of the fishery.

14 At the same time, the Circuit just as firmly held that
15 "one purpose for creating this reservation was to provide a
16 homeland for the Indians to maintain their agrarian society" and
17 thus irrigation is also a purpose resulting in an implied
18 reservation under New Mexico, supra. 647 F.2d at 47. Quoting
19 Arizona v. California, 373 U.S. 546, 600-01 (1963), the Court
20 noted that:

21 the only feasible and fair way by which
22 reserved water for the reservation can be
23 measured is irrigable acreage. We conclude
24 that, when the Colville reservation was
25 created, sufficient appurtenant water was
26 reserved to permit irrigation of all
practicably irrigable acreage on the
reservation.

Id. at 47-48 (citation omitted).

More strongly yet, the Court noted that:
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1
2 [W]hen allotments were made for exclusive use
3 and thereafter conveyed in fee, the right to
4 use some portion of tribal waters essential
5 for cultivation passed to the owners.

6 Id. at 50 (quoting United States v. Powers, 305 U.S. 527, 532
7 (1939)); see also Walton I, 460 F. Supp. at 1326 and authorities
8 cited therein.

9 Such individual rights are not subject to diminution
10 absent "express legislation or a clear inference of Congressional
11 intent gleaned from the surrounding circumstances and legislative
12 history." 647 F.2d at 50. Thus, just as the Tribe, as sovereign,
13 has a vested right to share in available reserved waters to
14 whatever extent might be necessary for the maintenance of the
15 hatchery, so the individual allottee, or his successor, has a
16 vested right to share in available reserved waters to whatever
17 extent might be necessary for irrigation. Obviously, these
18 competing interests, each vested and each with the same priority
19 date, are irreconcilable unless the quantity of water available
20 is sufficient to satisfy both needs. In this case, it is not.

21 Expert testimony detailing the operation of the
22 hatchery produced some surprises. One might tend to think of
23 water used in connection with a hatchery as merely a medium in
24 which the fish swim and feed. So it is, but a critical factor in
25 such operation is the temperature of the water, and since the
26 water at issue is drawn from the underground aquifer and is
exposed to ambient air temperature for only a brief period during
its sojourn along No Name Creek, it serves a cooling function so

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1 as to maintain the temperature of the pools at a level conducive
2 to propagation. Thus, in periods of high ambient air temperature
3 and low humidity, the warming of the pools by tranference and
4 evaporation will necessitate a higher flow to maintain the
5 temperature at the desired level. Unfortunately, it is at
6 precisely this time that crops will require a higher level of
7 irrigation. The irreconcilability of use is therefore
8 inescapable. Also, unfortunately, because the hatchery's use
9 requirements are neither stable nor predictable on a long term
10 basis, quantification is a distinct problem.

11 Dr. Koch's testimony as to hatchery needs was
12 uncontroverted. Based on his experience over the preceding six
13 years, he urged that a flow of 1.5 c.f.s. would be required
14 between May 1st and June 1st; 2.0 c.f.s. between June 1st and
15 July 15th; and 0.5 c.f.s. thereafter for the remainder of the
16 spawning season. There being no other evidence in the record on
17 this area, and no reason to question Dr. Koch's credibility,
18 those figures will be accepted.

19 So concluding, however, does not answer the question of
20 whose needs will take precedence. For that answer, the Circuit's
21 adoption of the following quote is instructive:

22 This [method of quantifying water rights]
23 does not necessarily mean, however, that
24 water reserved for Indian Reservations may
25 not be used for purposes other than
26 agricultural and related uses The
measurement used in defining the magnitude of
the water rights is the amount of water
necessary for agriculture and related
purposes because this was the initial purpose
of the reservation, but the decree

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1 establishes a property right which the United
2 States may utilize or dispose of for the
3 benefit of the Indians as the relevant law
4 may allow.

5 647 F.2d at 48 (emphasis original) (quoting Report from Simon H.
6 Rifkind, Special Master, to the Supreme Court 265-66 (December 5,
7 1960)).

8 The parties have cited no "relevant law" which would
9 allow the Tribe to dispossess its members, or other persons
10 succeeding to the vested rights of those members, of an important
11 property right; so important, indeed, that the value of the land
12 to which the water right is appurtenant may be entirely destroyed
13 without it. See Winters v. United States, 207 U.S. 564, 576
14 (1908). It could be argued, and probably will be on appeal, that
15 language in Walton II could be construed as impliedly allowing
16 the Tribe itself to determine whether its rights or those of its
17 individual members should prevail. Not only would such a result
18 nullify the concept that these competing rights are equal in
19 priority with each arising out of purposes for which the
20 reservation was created; but allowing a substantial, and perhaps
21 total, diminution of vested property rights without resort to any
22 definable process of law would fly in the face of provisions
23 contained in the Indian Civil Rights Act codified at 25 U.S.C. §
24 1301 et seq.

25 The sovereignty that the Indian tribes
26 retain is of a unique and limited character.
 It exists only at the sufferance of Congress
 and is subject to complete defeasance. But
 until Congress acts, the tribes retain their
 existing sovereign powers. In sum, Indian
 tribes still possess those aspects of

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sovereignty not withdrawn by treaty or statute, or by implication as a necessary result of their dependent status.

647 F.2d at 52 (quoting United States v. Wheeler, 435 U.S. 313, 323 (1978)).

In 1968, Congress imposed an express limitation on tribal sovereignty in the form of the Indian Civil Rights Act:

No Indian tribe in exercising powers of self-government shall--

* * * *

(5) take any private property for a public use without just compensation [or]

* * * *

(8) . . . deprive any person of liberty or property without due process of law.

25 U.S.C. § 1302.

Exactly what type of process may be due, or what remedies may be available for a breach, or what forum may be appropriate for enforcing the manifest intent of Congress to impose upon tribal government certain restrictions akin to those contained in the Bill of Rights, are all hotly debated and somewhat less than settled. See, e.g., Confederated Salish & Kootenai Tribes v. Namen, 665 F.2d 951, 964 n.31 (9th Cir), cert denied, ___ U.S. ___, 103 S.Ct. 314 (1982); Jicarilla Apache Tribe v. Andrus, 687 F.2d 1324, 1345-46 (10th Cir. 1982); F. Cohen, Handbook of Federal Indian Law 242-44 (1982) and authorities cited therein. The existence of such questions, however, does not, by some means of prestidigitation, render the

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1 above-cited congressional mandate ineffective. Whatever
2 "relevant law" may afford the predicate for extinguishing an
3 individual's property rights in favor of the Tribe must take into
4 account and reconcile this congressional limitation upon tribal
5 sovereignty.

6 Absent some showing that relevant law provides for
7 divesting allottees or their successors of otherwise vested
8 property rights, I am inclined to conclude that the assimilation
9 policy so evident in congressional intent underlying the General
10 Allotment Act prevents the Tribe from unilaterally assigning
11 weights and priorities to mutually legitimate reservation
12 purposes.¹⁵ See Walton II, 647 F.2d at 49; United States v.
13 Powers, supra, 305 U.S. at 533; 25 U.S.C. § 381.

14 The final allocation, therefore, will be as set forth
15 supra. Out of the 1,000 acre feet available, Walton is entitled
16 to 384 acre feet; the remaining allotments to 428.8; and the
17 hatchery to 187.2. At first glance this may appear to run afoul
18 of the portion of Walton II which arguably gives the Tribe
19 unlimited access to hatchery water. That access, however, is
20 conditioned on the existence of a legal mechanism whereby one may
21 be divested of valuable property rights. 647 F.2d at 48. The
22 Tribe is hardly without recourse. Should the Secretary of
23 Interior, by appropriate regulation or proceedings, alter the
24 structure of allocation pursuant to 25 U.S.C § 381, or should the
25 Tribe seek to condemn water rights appurtenant to allotted lands
26 in the No Name Creek Basin under 25 U.S.C. § 1302(5),¹⁶ the

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1 currently envisioned impediment to unilateral impairment of
2 allottee property rights would likely disappear.

3 Gratuitous though it may appear, this court is of the
4 opinion that no matter what result obtains when the final chapter
5 in this litigation is at long last written, the parties are going
6 to have to come to grips with the proposition that a spirit of
7 cooperation may be the best answer to efficient and fair
8 utilization of water in the No Name Creek Basin. If the thrust
9 and motivation underlying the instant suit is merely to provide
10 attorneys with a forum for launching abstruse forays into matters
11 esoteric, then the entire project has been a phenomenal success.
12 On the other hand, if the purpose of this action is to provide
13 each of the competing interests an equitable share and thereby
14 promote maximum utilization of a limited resource for the mutual
15 benefit of all concerned, a little more unity of purpose may be
16 indicated.

17 In the final analysis, the 1,000 acre feet now
18 available would be adequate to service all needs except for a
19 brief period, perhaps four to six weeks, during portions of June
20 and July each year. Some use is already being made of holding
21 pools to serve as reservoirs. Expansion of such a device might
22 well render full irrigation possible even during maximum water
23 utilization by the fishery.¹⁷ Further, while there may be some
24 engineering problem of which the court is presently unaware, no
25 one has satisfactorily explained from the witness stand why
26 fishery waters could not be recaptured prior to flowing into Omak

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1 Lake for application on irrigable land upstream.¹⁸ If the parties
2 are to avoid the expense and aggravation of having their
3 day-to-day operations controlled by a water master, such
4 cooperative ventures may be the ultimate answer.

5 There is one remaining issue which is not reflected in
6 the Circuit's mandate, but which the parties have suggested be
7 resolved. The Tribe has significantly enhanced the natural flow
8 of No Name Creek by pumping water from the aquifer to the natural
9 creek channel for delivery downstream.¹⁹ Walton has been pumping
10 out of the creek for irrigation purposes. Now that the
11 respective shares to which the parties are entitled have been
12 quantified, it would appear only equitable that Walton reimburse
13 the Tribe for the costs of pumping to the extent that he is
14 withdrawing more water than would be available were the flow of
15 No Name not enhanced. If the parties are unable to arrive at a
16 fair fee, the court will retain jurisdiction to settle the matter
17 either directly or through a water master.

18 THEREFORE IT IS ORDERED:

19 (1) Walton is entitled to share in the reserved waters
20 of the No Name Creek Basin in the amount of 384 acre feet per
21 year and will be enjoined from diverting more than that quantity
22 from either the Creek or the underground aquifer.

23 (2) The other allottees, represented herein by the
24 United States, are entitled to share in the reserved waters of
25 the No Name Creek Basin in the amount of 428.8 acre feet per year
26 and will be enjoined from diverting more than that quantity from

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either the Creek or the underground aquifer.

(3) The Tribe is entitled to share in the reserved waters of the No Name Creek Basin in the amount of 187.2 acre feet per year and will be enjoined from diverting more than that quantity from either the Creek or the underground aquifer.

(4) The Clerk shall enter judgment accordingly.

DONE BY THE COURT this 30th day of August, 1983.


Robert J. McNichols
United States District Judge

Entered in Civil Docket on 8/31/83 DD

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FOOTNOTES

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2 ¹ Rarely has an appellate court more strongly urged review by the Supreme Court:

3 We are persuaded of the correctness of our analysis
4 and conclusion concerning the transferability of the
5 water rights involved in this litigation. Nevertheless,
6 we recognize that reasonable minds hold conflicting
7 views. State and federal courts, state and federal
8 agencies responsible in water rights administration,
9 and the numerous Indian tribes, allottees and their
10 transferees, are plagued almost on a daily basis with
11 the problems and uncertainties surrounding the issues
12 discussed in this opinion. This case presents an
13 appropriate vehicle for the Supreme Court to give
14 guidance and stability to an area of great unrest and
15 uncertainty in Western water and land law. A
16 definitive resolution is overdue. The magnitude of the
17 problem cannot be overstated.

18 647 F.2d at 54 n.18.

19 ² Rule 52(a), Fed.R.Civ.P. It should be noted at the outset that
20 most of the witnesses appearing in the recent round of hearings
21 were both candid and forthright in presenting testimony. Two
22 notable exceptions were Mr. Clark and Mr. Kaczmarek, whose
23 partisanship shone through. Their purported ability to identify
24 irrigated lands from ancient aerial photographs did not survive
25 the rigors of cross-examination and the court places little
26 weight on their opinions.

27 ³ Estimates by persons familiar with this area varied from a low of
28 17 to a high of 40. Selection of the figure 30 is not merely an
29 averaging, but rather is based upon what I consider the most
30 focused and trustworthy recollections.

31 ⁴ Bordering the south of the Walton property is an impermeable
32 granitic lip which tends to maintain ground water at a high level
33 in immediately adjacent areas. This geologic fact tends to
34 support witness testimony that sixty years ago, these areas were
35 sub-irrigated.

36 ⁵ These were happier times. Mary Ann Timentwa Sampson, who
37 lived on 901 and 903 as a young girl, offered the following:

38 Q. And in addition to [the Whams] leasing your
39 mother's property, they were farming some of
40 their own property, were they not?

41 A. Yes, they were.

42 Q. And as I understand it, from time to time they

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1 did assist you in tilling the land, or farming
2 the land, or in developing the irrigation.

3 A. Well, we were neighbors, and if they needed
4 help, we went and helped them, and that was the
5 same with Joe Peter. We were neighbors, the
6 three of us, and we helped one another.

7 The tribe makes much of the admitted fact that the Whams
8 were not piggish about taking only their fair share of the
9 natural flow of No Name Creek, always allowing a sufficient
10 amount to flow to the south for the benefit of their neighbors on
11 901 and 903. It is contended that this is incontrovertible proof
12 that the Whams deliberately failed to exercise due diligence in
13 fully developing their potentially irrigable acreage and that
14 this deliberate by-pass forever freezes the amount of irrigable
15 acreage at the level under cultivation during the time frame the
16 Whams were in possession. This is utter nonsense. That Wham,
17 Peters and Timentwa had the prescience to foresee the Circuit's
18 doctrine of ratable reduction is much to their credit.

19 6 The state ultimately issued a Certificate of Water Right in 1950
20 for 1.0 c.f.s. for the irrigation of sixty-five acres. This
21 water right was declared a nullity in Walton II, 647 F.2d at
22 52.

23 7 This is the figure adopted by the Circuit as the amount
24 "currently irrigated" by Walton. 647 F.2d at 45. It also
25 closely approximates the figures found in Judge Neill's opinion.
26 460 F. Supp. 1324; see also id. at 1334, stipulated fact #20.
That does not supply the answer to what Walton may have been
irrigating shortly after acquiring the land, bringing in
electricity, and modernizing his irrigation equipment. Had this
court been instructed to try the entire matter de novo, then I
would have to consider the possibility that substantial evidence
exists to fix the quantity of acreage at a significantly higher
figure. For reasons set forth in note 10, infra, however, I am
inclined to view the 104 acre figure as the law of the case
insofar as the question of due diligence is concerned.

8 This analysis has the salutary effect of establishing a
ceiling on Walton's claim. That is to say, even if, as asserted
by the Tribe, Walton has appropriated more water than could be
beneficially applied, he will be given "credit" for having
appropriated only that amount which would be necessary to
efficient farming efforts.

9 As testimony established during trial, any year-to-year
deviation can be explained with reference to such universal
farming practices as crop rotation, emphasizing one crop over
another in response to market conditions, and allowing land to
stand fallow as a conservation practice.

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An extremely troubling aspect of this case lies in the uncomfortable feeling that not all "facts" are. For example, with respect to the fishery issue, Judge Neill found that "No Name Creek is the only fresh water source into the lake." 460 F. Supp. at 1325. In fact, the Tribe's own expert, who is intimately familiar with the fishery operation, testified before this court that at least two other creeks would have been equally suitable for use as a spawning ground. Perhaps far more critically, the trial court found that "[t]he allotments now owned by the Waltons passed from Indian ownership in 1942." *Id.* at 1324. In fact, as all parties freely agree, Hettie Justice Wham was not an Indian. See *id.* at 1334, Appendix 22(a) and (c). The allotments at issue thus passed out of Indian ownership in 1921-25.

It would be less than honest to pass on the questions raised without disclosing the above. On the other hand, the mandate does not contemplate this court now retrying the matter in its entirety. Perhaps the dilemma can be laid to rest by making the reasonable assumptions that: (1) the parties had a full and fair opportunity to litigate all factual issues in this action in front of Judge Neill; (2) the parties had full opportunity to appeal those findings of fact not supported by the evidence; and (3) the Circuit gave appropriate attention to all challenges of the fact-finding process and chose to accept the facts as found by the trial court.

With these assumptions in place, perhaps it would be presumptuous for this court to now question the validity of some very basic, and arguably dispositive, factual predicates. The facts found by the trial court and relied upon by the Circuit will thus be considered to constitute the law of the case, and this court will refrain from original fact-finding except insofar as may be necessary to fulfill the mandate.

11 The argument is buttressed in the record by testimony from Mr. Apple, who was a pioneer in installing irrigation systems in that part of the country.

12 460 F. Supp. at 1330. This figure does not include allotment 526 which is beneficially owned by the Tribe. *Id.*, approved in *Walton II*, 647 F.2d at 49. This may be an appropriate point at which to clarify language contained in an earlier order of this court where it was noted that although 526 is not entitled to participate in the waters of No Name Creek, either by means of surface diversion or drawing from the aquifer, the Tribe could nevertheless continue to irrigate this allotment provided that whatever water was applied would be subtracted from the share which would otherwise be available for 892, 901 and 903. For reasons addressed *infra*, this does not mean that the Tribe may unilaterally divest individual allottees or their successors of their vested shares. It merely means that the Tribe, as lessee of the individual allotments, could place water under its

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- 1 control by virtue of those leases wherever it might deem
2 appropriate.
- 3 13. 460 F. Supp. at 1330. Expert testimony at trial ranged from a
4 low estimate of 550 acre feet to a high of 1,300 available for
5 consumptive use. Id. at 1329. The plain fact of the matter is
6 that no one knows what the maximum output of the No Name aquifer
7 might ultimately be. The figure employed in both Walton I and
8 II of 1,000 acre feet is far in excess of the natural flow of the
9 creek due to the pumping stations installed by the litigants. The
10 parties are in agreement that this enhancement of the natural
11 flow has not yet resulted in a "mining" situation; i.e., the
12 aquifer has demonstrated the ability over the course of a number
13 of years now to replenish itself cyclically. Thus, the figure of
14 1,000 acre feet is simply Judge Neill's best guess. On the
15 evidence available, this court could do no better.
- 16 14 This result might appear to give the Tribe an advantage since,
17 although its maximum potential allocation was ratably reduced,
18 the same reducing factor was not applied to its actual
19 allocation. That is to say, the Tribe will have the ability to
20 apply a full four acre feet to its irrigated land, while Walton
21 will have to make do with that water available after reduction,
22 thereby giving him the choice of either irrigating slightly less
23 land, or of applying slightly less water to the total quantity of
24 irrigable land. This apparent anomaly is dictated by the
25 analysis supplied in Walton II which holds due diligence on
26 Walton's part to be the cornerstone of his right to share at all,
whereas such diligence is an irrelevancy with respect to the
tribal members. That is to say, it would seem that the reduction
factor is to be applied to the gross potential allocation, rather
than to the actual allocation.
- 15 15 Even assuming that the internal political framework of tribal
16 government would accord member/allottees sufficient due process
17 with respect to restructuring or quantifying water rights, that
18 in itself would be no guarantee that a non-member would find
19 himself similarly situated. Cf., Dry Creek Lodge, Inc. v.
20 Arapahoe & Shoshone Tribes, 623 F.2d 682, 685 (10th Cir. 1980),
21 cert. denied, 449 U.S. 1118 (1981).
- 22 16 See generally, Seneca Constitutional Rights Organization v.
23 George, 348 F. Supp. 51, 59 (W.D. N.Y. 1972) (power to
24 condemn is a function of sovereignty subject to congressional
25 limitation). By noting this theoretical possibility, the court
26 does not mean to imply that the Tribe's power of eminent domain
is by any means a settled proposition, or that such authority
could be employed with equal ease against both tribal members and
non-Indians alike.
- 17 17 Understandably, capital expenditure in this area would be unwise
until such time as the parties' respective rights are fully and
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1 finally adjudicated.

2 18 Dr. Koch expressed some reservations as to the economic and
3 technical feasibility of such diversion, but he did agree that it
would be possible.

4 19 It has previously been settled that the creek and the aquifer
5 constitute but a single hydrological unit. The Tribe's
6 contention that its pumping efforts fall within the doctrine of
"developed waters" has been soundly rejected. Likewise, I reject
7 the new, but parallel, argument that such pumping is merely a
withdrawal of "stored waters."

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**BEFORE THE DIRECTOR
OF THE WATER RESOURCES DEPARTMENT
OF THE STATE OF OREGON**

KLAMATH BASIN GENERAL STREAM ADJUDICATION

In the Matter of the Claim of	)	CORRECTED PARTIAL ORDER OF
THE KLAMATH TRIBES AND THE	)	DETERMINATION
UNITED STATES DEPARTMENT OF	)	
INTERIOR, BUREAU OF INDIAN	)	
AFFAIRS AS TRUSTEE ON BEHALF OF	)	Water Right Claims 671 – 673
THE KLAMATH TRIBES	)	(Klamath River and its tributaries)
	)	

The GENERAL FINDINGS OF FACT of the FINAL ORDER OF DETERMINATION is incorporated as if set forth fully herein.

**A. FINDINGS OF FACT AND DESCRIPTION OF MODIFICATIONS
TO THE PROPOSED ORDER**

1. Claims 671 – 673 and that Portion of Claim 612 pertaining to the Klamath River and its tributaries, (Claimants: THE KLAMATH TRIBES; AND THE UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF INDIAN AFFAIRS AS TRUSTEE ON BEHALF OF THE KLAMATH TRIBES (BIA)) and their associated contests¹ were referred to the Office of Administrative Hearings for a contested case hearing which was designated as Case 282.
2. Claim 612 was filed by the Klamath Tribes. It is a composite claim that incorporates by reference each of the United States Bureau of Indian Affairs' claims based on the hunting, trapping, fishing, and gathering purposes of the Klamath Treaty of 1864. The portion of Claim 612 pertaining to the Klamath River incorporates by reference BIA Claims 671 – 673.
3. The Office of Administrative Hearings conducted contested case proceedings and ultimately issued a PROPOSED ORDER (Proposed Order) for Claims 671 – 673, and that Portion of Claim 612 pertaining to the Klamath River and its tributaries on April 16, 2012.

¹ Claim 671: 2064, 3070, 3257, 3373, 3657, 3932, 4061; Claim 672: 2065, 3071, 3258, 3374, 3658, 3933, 4062; Claim 673: 2066, 3072, 3259, 3375, 3659, 3934, 4063; Claim 612: 2062, 2730, 3016, 3249, 3314, 3644, 4002.
CORRECTED PARTIAL ORDER OF DETERMINATION
CLAIMS 671-673 (Klamath River and its tributaries)

4. Exceptions were filed to the Proposed Order within the exception filing deadline by (1) the Oregon Water Resources Department, (2) Upper Basin Contestants, (3) the Klamath Tribes, United States and Klamath Project Water Users (KPWU), who filed a Joint Limited Exception. Responses to exceptions were timely filed by the United States and the Klamath Tribes.
5. The exceptions filed to the Proposed Order along with opposition to the exceptions have been reviewed and considered in conjunction with the entire record for Claims 671 – 673 and that Portion of Claim 612 pertaining to the Klamath River and its tributaries. The exceptions are found to be persuasive in part, and therefore, modifications are made to the Proposed Order as described in Sections A.8, A.9, A.10, A.11, and A.12, below.
6. For administrative convenience, OWRD has addressed Claim 612 in a separate Partial Order of Determination for Claim 612. Section B.2 of this Partial Order of Determination makes a legal conclusion about the relationship between Claim 612 and the United States' Claims 671 – 673, and the ownership of the water rights that are recognized in these claims.
7. The Proposed Order is adopted and incorporated, with modifications, into this Partial Order of Determination as follows:
 - a. The "Procedural History" is adopted in its entirety.
 - b. The "Evidentiary Rulings" is adopted in its entirety.
 - c. The "Expert Testimony" is adopted in its entirety.
 - d. The "Issues" is adopted in its entirety.
 - e. The "Findings of Fact" is adopted with modifications, as set forth in Section A.8, below.
 - f. The "Conclusions of Law" is adopted with modifications, as set forth in Section A.9, below.
 - g. The "Opinion" is adopted with modifications, as set forth in Section A.10, below.
 - h. The section titled "Order" is replaced in its entirety as set forth in Section A.11, below. Consistent with Sections A.8, A.9, A.10, A.11 and A.12, below, the outcome of Order has been modified to reflect the denial of Claims 671, 672, and 673.
 - i. The "Attachment A" is not adopted, as set forth in Section A.12, below.
 - j. The "Order on Amended Stipulation" is adopted with relevant terms and certain exceptions as set forth in Section A.13, below.
8. **Findings of Fact.** Within the Proposed Order's "Findings of Fact" section, Findings of Facts 11, 16, and 17 are modified as follows (additions are shown in "underline" text, deletions are shown in "~~striketrough~~" text):
 - a. *Modifications to Finding of Fact 11:*
 11. Claim 671 identifies the upper and lower reach boundaries' longitude and latitude coordinates (NAD 27) as well as township-range designations. The township-range description for the upper reach boundary is identified as

Township 40 south, Range 7 east, Section 6, Southwest $\frac{1}{4}$ Northeast Northwest $\frac{1}{4}$ (T 40S, R 7E, S 6, SW $\frac{1}{4}$ ~~NE $\frac{1}{4}$~~ NW $\frac{1}{4}$), distance from NW corner, S 14° 24' 25" E, 2,138.4 ft. The lower reach boundary is identified as T 41 S, R 5E, S 13, NE $\frac{1}{4}$ NW $\frac{1}{4}$, distance from NW corner S 70° 58' 60" E, 1918.3 ft. (OWRD Ex. 49 at 17-19).

Reasons for Modifications: To provide the correct location, as supported by the evidence, for the upper reach boundary for Claim 671; to correct a citation to the record.

b. *Modifications to Finding of Fact 16:*

16. Claim 673 claimed instream flows in a reach of the Link River extending from Lake Ewauna to the Link River dam. The claim asserted a water right to support migratory passage of anadromous salmonid fish species into and out of the Klamath River basin. The claim asserted a water right for the period January 1 through December 31 each year. The claimed flows for physical habitat encompassed the natural up to 700 cfs. (OWRD Ex. 51 at 1 through 13.)

Reasons for Modifications: To correct a citation to the record.

c. *Modifications to Finding of Fact 17:*

17. Claim 673 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 34 S, R 7E, S 6, SE $\frac{1}{4}$ NE $\frac{1}{4}$~~ T 38 S, R 9E, S 30, NW $\frac{1}{4}$ SE $\frac{1}{4}$, distance from NW ~~SE~~ corner, S ~~1° 55' 54" E, 1937.7~~ N 37° 42' 12" W, 2579 ft. The lower reach boundary is identified as ~~T 35 S, R 7E, S 3, NW $\frac{1}{4}$ NW $\frac{1}{4}$~~ T 38 S, R 9E, S 32, NE $\frac{1}{4}$ SW $\frac{1}{4}$, distance from NW corner, S 30° 40' 00" E, 3963 ft. ~~S 61° 20' 14" E, 337.3~~ (OWRD Ex. ~~5 at 16~~ 51 at 13.)²

² The map of record (OWRD Ex. 51 at 13) gives a written description of the upper and lower reaches as T 38 S, R 9E, S 30, NW $\frac{1}{4}$ SE $\frac{1}{4}$, distance from SE corner, N 36° 8' 23" W, 1762.9 ft.; and T 38 S, R 9E, S 32, NE $\frac{1}{4}$ SW $\frac{1}{4}$, distance from SE corner N 21° 0' 7" W, 1908.3 ft.; respectively. (These are even different from the TRS and bearing and distances cited in the ALJ's Proposed Order.) Plotting these bearing and distances listed on the map of record from the specified corners does not place the upper and lower reaches in the mapped locations according to the

CORRECTED PARTIAL ORDER OF DETERMINATION
CLAIMS 671-673 (Klamath River and its tributaries)

Reasons for Modifications: To provide the correct locations, as supported by the evidence, for the upper and lower reach boundaries for Claim 673; to correct a citation to the record.

d. *Additional Finding of Fact 41:*

41. The entirety of the Klamath River reaches claimed in Claims 671, 672 and 673 (as well as the equivalent portion of Claim 612) lie entirely outside the boundaries of the former Klamath Indian Reservation.

Reason for Modification: To more fully set forth findings of fact as supported by a preponderance of evidence in the record.

9. **Conclusions of Law.** Within the Proposed Order's "Conclusions of Law" section, Conclusions of Law 1 through 4 are modified as follows (additions are shown in "underline" text, deletions are shown in "~~striketrough~~" text):
1. Claimants are not entitled to claim instream flows outside the boundaries of the former reservation in order to fulfill the purposes of the reservation.
 2. Given that Claimants' off-reservation water right claims are outside the scope of the federal reserved water right doctrine, and therefore must be denied as a matter of law, it is unnecessary in this case to determine whether the claimed instream flows are necessary to establish a healthy and productive habitat to allow the exercise of the Klamath Tribes' on-reservation fishing rights guaranteed by the treaty of 1864.
 3. It is unnecessary in this case to determine whether the Tribes' treaty rights have ~~not~~ been extinguished on lands no longer owned by the Tribes.
 4. It is unnecessary in this case to determine whether the Klamath Restoration Act of 1986 ~~did not limit~~ limited the restoration of the Tribes' treaty rights on former reservation land.

Reason for Modification: To make the Conclusions of Law consistent with OWRD's interpretation of the law.

notations for the "Upper Boundary" or "Lower Boundary" noted on the topographic map of record. Thus, the bearing and distance measurements were calculated by OWRD in UTM 10, NAD 27.

10. Opinion. The Proposed Order's "Opinion" section is replaced in its entirety as follows:

It is undisputed that the each of the river reaches claimed in Claims 671, 672 and 673 (as well as the equivalent portion of Claim 612) lies entirely outside the boundaries of the former Klamath Indian Reservation. OWRD concludes that off-reservation water right claims are outside the scope of the federal reserved water right doctrine as a matter of law. The claims must be denied for this reason. It is therefore unnecessary to reach the other legal issues raised in this case.

The statutes and rules governing this proceeding place limits on OWRD's ability to modify or delete factual findings made by the ALJ. OWRD therefore incorporates all of the Proposed Order's factual findings by reference (irrespective of whether those findings appear in the designated "Findings of Fact" section), despite the fact that most of the findings are not relevant given OWRD's determination of the off-reservation water right claim issue.

OWRD's conclusion with respect to off-reservation federal reserved water right claims is discussed in detail below.

A. The Claimants' claims for off-reservation water rights are not supported by the underlying principles of the federal reserved water right doctrine

As is described in detail below, there is no federal precedent in support of off-reservation federal reserved water rights. Nor is there any basis for expanding the federal reserved water right doctrine to include implied off-reservation federal reserved water rights.

The federal reserved water right doctrine is judge-made law. It determines whether a court should imply that the federal government intended to create a water right when reserving a specific piece of land for a specific purpose, notwithstanding the fact that neither Congress nor the executive branch explicitly created a water right to benefit that land.

Recognizing the origins of the doctrine, the United States Supreme Court has found that federal reserved water right claims require "careful examination," both "because the reservation [of water] is implied, rather than expressed" and because, "[w]here Congress has expressly addressed the question of whether federal entities must abide by state water law, it has almost invariably deferred to the state law." *United States v. New Mexico*, 438 US 696, 701-02 (1978).

Allowing implied off-reservation federal reserved water rights would be at odds with this admonition. Recognition of such rights would give the implied right in water a greater scope than the explicit right in land. A federal reservation of land has an explicitly defined, geographically limited scope. The primary purposes of that reservation of land apply only within the reservation's explicitly defined boundaries. Recognition of implied off-reservation federal reserved water

rights would allow the *implied* exercise of federal authority (the reservation of water) to greatly exceed the *explicit* exercise of federal authority, by permitting an implied reservation of water that could greatly exceed the boundaries of the explicit reservation of land.

This is not merely a theoretical concern. An implied reservation of water to benefit a reservation of land for the harvest of anadromous fish – no matter how small the reservation of land or how significant the fishery – could result in implied water rights ranging from the ocean up to the headwaters of all of a river's tributaries. So construed, the judicially created federal reserved water rights doctrine would completely undermine Congress's historical deference to state water law.

The implied creation of a water right potentially far greater in geographic scope than the explicit reservation of land does not square with the *New Mexico* court's directive to treat the federal reserved water right doctrine conservatively. OWRD therefore concludes that it is inappropriate to so dramatically expand the federal reserved water right doctrine.

B. The cases relied on in support of an off-reservation water right are inapplicable

None of the cases cited by the Claimants in support of off-reservation water rights to support on-reservation hunting and fishing rights are applicable. The cited cases are not determinative of the issue at hand. Nor do they provide persuasive support for the Claimants' position. The Claimants cite to *Arizona v. California*, 376 US 340 (1964); *Kittitas Reclamation Dist. v. Sunnyside Valley Irrig. Dist.*, 763 F.2d 1032, 1033-35 (9th Cir. 1985); *Washington Dep't of Ecology v. Acquavella*, No. 77-2-01484-5, Memorandum Opinion: Treaty Reserved Water Rights at Usual and Accustomed Fishing Places (Wash. Super. Ct. Sept. 1, 1994); and *United States v. Adair*, 723 F.2d 1394 (9th Cir 1983) (*Adair II*) as support for their position. OWRD addresses each of these cases below.

The Claimants characterize *Arizona*, 376 US at 344-45, as having awarded "reserved water rights from the Colorado River for the Cocopah Reservation, even though the river lies approximately two miles outside reservation boundaries." Claimants' Joint Post-Hearing Response Brief at 53 (emphasis in original; internal citations omitted). The Claimants argue that *Arizona* was premised on the Cocopah Reservation being two miles from the Colorado River. On the contrary, the relative locations of the Cocopah Reservation and the Colorado River, and the effect the relative locations might have on an award of water rights, was at not at issue in *Arizona*. The decision does not even mention the relative locations of the Cocopah Reservation and the river. Under these circumstances, the decision could not have been premised on the Colorado River being off the reservation.

As the Claimants acknowledge, the boundaries of the Cocopah Reservation were in dispute, although not in the *Arizona* proceeding, at the time of the *Arizona*

decision. A 1972 Opinion of the Solicitor of the Department of the Interior states: “Over the years there have been considerable differences of opinion regarding interpretation of the Executive Order” that created the Cocopah Reservation. Opinions of the Solicitor, page 2051, December 21, 1972 (“1972 Opinion”) (attached hereto as Exhibit A). Specifically, the dispute pertained to whether the Executive Order intended to include lands bordering the Colorado River within the Reservation. *Id.* The 1972 Opinion reversed an earlier opinion issued by the Solicitor of the Interior, and concluded that the “reservation as created by the Executive Order...extended to the Colorado River.” *Id.* at 2052. Given that the issue of awarding reserved water rights in off-reservation bodies of water was not in dispute in *Arizona*, and that the reservation boundaries were uncertain at the time of the *Arizona* decision,³ *Arizona* provides no support for the Claimants’ position.

The Claimants next cite to a ruling issued by a federal district court judge in the state of Washington, which was affirmed by the Ninth Circuit Court of Appeals in *Kittitas Reclamation Dist. v. Sunnyside Valley Irrig. Dist.*, 763 F.2d 1032, 1033-35 (9th Cir. 1985). The district court judge’s ruling required the Yakima Irrigation Project to maintain a certain quantity of water at a location outside of the primary Yakama Reservation boundaries to support the Yakama Nation’s treaty fishing rights. Civ. No. 21, Instructions to the Watermaster (E.D. Wash. Oct. 31, 1980) (attached as Attachment C4 to the Affidavit of David W. Harder in Support of the United States’ and Klamath Tribes’ Memorandum in Support of Joint Motion for Ruling on Legal Issues Defining the Tribal Water Rights, submitted July 8, 2005) (referred to herein as “Instructions to Watermaster”).

The treaty establishing the Yakama Reservation is different from the Klamath Treaty in a critical respect. Unlike the Klamath Treaty, the Yakama treaty reserved fishing rights for the Yakama Nation at “usual and accustomed [fishing] places” outside the primary boundaries of the Yakama Reservation. *Kittitas*, 763 F.2d at 1033. In other words, the Yakama hold rights to use land for a specific purpose at locations outside the primary reservation boundaries. The district court ruling specifically states that the reach of river protected by the ruling “is a part of a fishery reserved to the Yakama Indian Nation and its members pursuant to its treaty with the United States....” Instructions to the Watermaster at 2. The water rights affirmed by *Kittitas* are therefore based on a specific, underlying fishing right (a right in land at the “usual and accustomed fishing places”) for which there is no equivalent in the Klamath Treaty.

In addition, the *Kittitas* cases did not involve the adjudication of the Yakama Nation’s federal reserved water rights (or the adjudication of any other water rights). The Ninth Circuit stated specifically that the parties to the proceeding

³ While the view of the United States Department of Interior Solicitor at the time of the *Arizona* decision was that the Colorado River was not on and did not border the Cocopah Reservation, the 1972 Opinion makes clear that the Solicitor’s view at the time of the *Arizona* decision was not universally shared.

“intended no general adjudication of water rights.” *Kittitas Reclamation Dist. v. Sunnyside Valley Irrigation Dist.*, 763 F2d 1032, 1035 (1985).

Finally, the *Kittitas* cases do not engage in any analysis of the federal reserved water rights doctrine that supports an expansion of the doctrine to include off-reservation water rights at locations that do not constitute “usual and accustomed [fishing] places.” *Kittitas* provides no support for the Claimants’ position.

The Claimants also cite *Washington Dep’t of Ecology v. Acquavella*, No. 77-2-01484-5, Memorandum Opinion: Treaty Reserved Water Rights at Usual and Accustomed Fishing Places (Wash. Super. Ct. Sept. 1, 1994) (OWRD Ex. 2 at 717-731) as having awarded off-reservation water rights. *Acquavella* is a decision of a Washington state superior court, and therefore does not serve as applicable precedent in this proceeding.

Nor does *Acquavella* serve as persuasive authority. *Acquavella* pertains to the treaty establishing the Yakama Reservation, which is different from the Klamath Treaty in a critical respect. Unlike the Klamath Treaty, the Yakama treaty reserved fishing rights for the Yakama Nation at “usual and accustomed [fishing] places” outside the primary boundaries of the Yakama Reservation. OWRD Ex. 2 at 726, 731. In other words, the Yakama hold rights to use land for a specific purpose at locations outside the primary reservation boundaries. The court thus addresses the question of water rights at locations where the Yakama Nation also had treaty fishing rights. *Acquavella* does not engage in any analysis of the federal reserved water rights doctrine that supports an expansion of the doctrine to include off-reservation water rights at locations that do not constitute “usual and accustomed [fishing] places.” *Acquavella* provides no support for the Claimants’ position.

Finally, the Claimants’ cite to language in *United States v. Adair*, 723 F2d 1394 (9th Cir 1983) (*Adair II*), that describes the process for determining the primary purposes of an Indian reservation, and the canons of Indian treaty interpretation. Reliance on *Adair II* misses the mark. The question posed by the Claimants’ off-reservation water right claim is whether the federal reserved water right doctrine is broad enough to permit implied water rights *under any circumstances* at locations geographically unconnected to (i.e., not either bordering or within) a federal reservation of land. If the doctrine is not so broad (and OWRD concludes that it is not), then the purposes of a particular federal reservation, or the documents creating a particular federal reservation, are immaterial.

The Claimants repeatedly cite to portions of *Adair II* that describe the determination of the *purposes* of the reservation. *See, e.g., Adair II*, 723 F2d at 1408, n13. It is in this context, and this context only, that the *Adair II* court treats Indian reservations differently than other federal reservations of land. As the *Adair II* court explained, determination of the purposes of the reservation is based on an interpretation of the treaty creating the reservation. In this context, canons

of Indian treaty construction may apply. But the purpose of the reservation is only one element of a federal reserved water right, and it is an element that speaks to the character of the land actually reserved. It does not address the effects of a reservation on far-flung locales. The *Adair II* court's discussion of the purpose of a reservation is therefore inapplicable to the question of off-reservation water rights.

In conclusion, the Claimants' claims for off-reservation water rights are not supported by either the underlying principles of the federal reserved water right doctrine or by the case law. The off-reservation portion of Claims 668 is therefore denied.

Reasons for Modification: To make the Opinion section consistent with the Department's legal conclusions, and to describe the legal reasoning behind certain of the Department's legal conclusions.

11. **Order.** The section titled "Order" is replaced as follows:

Claims 671, 672, and 673, and those portions of Claim 612 that pertain to the Klamath River are denied because those claimed reaches lie entirely outside of the former Klamath Indian reservation boundary.

Reasons for Modifications: To reflect the Findings of Fact, Conclusions of Law and Opinion sections.

12. **Attachment A.** Because the claims are denied in their entirety, Attachment A to the Proposed Order, which sets forth flow levels for the reaches claimed, is neither adopted nor incorporated into this Partial Order of Determination.
13. **Order on Amended Stipulation.** On June 19, 2009, the ALJ entered an Order on Klamath Tribes, United States, and Klamath Project Water Users' Stipulation of Conditional Withdrawal of KPWU's Contests to Claims 671, 672, 673 and that Portion of Claim 612 Pertaining to the Klamath River and Conditional and Interim No-Call Provisions by the United States and Klamath Tribes ("Order on Stipulation"). The Order on Stipulation provided that certain of its terms "shall be included in the Proposed Order issued under ORS 183.464(1) and OAR 137-003-0645 and any other Order or Judgment determining" the enumerated claims and contests.

On April 11, 2012, the United States filed the following documents:

AMENDED STIPULATION OF CONDITIONAL WITHDRAWAL OF KWPU'S CONTESTS TO CLAIMS 671, 672, 673 AND THAT PORTION OF CLAIM 612 PERTAINING TO THE KLAMATH RIVER AND CONDITIONAL AND INTERIM NO-CALL PROVISIONS BY THE UNITED STATES AND KLAMATH TRIBES AND ATTACHMENTS 1 AND 2 ("Amended Stipulation");

JOINT MOTION FOR APPROVAL OF AMENDED STIPULATION OF CONDITIONAL WITHDRAWAL OF KPWU'S CONTESTS TO CLAIMS 671, 672, 673 AND THAT PORTION OF CLAIM 612 PERTAINING TO THE KLAMATH RIVER AND CONDITIONAL AND INTERIM NO-CALL PROVISIONS BY THE UNITED STATES AND KLAMATH TRIBES; and

[PROPOSED] ORDER ON KLAMATH TRIBES, UNITED STATES, AND KLAMATH PROJECT WATER USERS' AMENDED STIPULATION OF CONDITIONAL WITHDRAWAL OF KPWU'S CONTESTS TO CLAIMS 671, 672, 673 AND THAT PORTION OF CLAIM 612 PERTAINING TO THE KLAMATH RIVER AND CONDITIONAL AND INTERIM NO-CALL PROVISIONS BY THE UNITED STATES AND KLAMATH TRIBES.

The Amended Stipulation is an agreement between Claimants (the Klamath Tribes and the United States), Contestants Klamath Project Water Users ("KPWU"), and the Oregon Water Resources Department ("OWRD"). The Amended Stipulation is comprised of five sections. Section A is a stipulation of facts. Section B provides for the conditional withdrawal of KPWU's contests in this case. Section C provides for a conditional limitation on the exercise of the water rights recognized in this case. Section D requests the ALJ to enter a proposed order implementing the Amended Stipulation. Section E provides general terms pertaining to the Amended Stipulation.

On April 25, 2012, the ALJ entered the Order on Klamath Tribes, United States, and Klamath Project Water Users' Amended Stipulation of Conditional Withdrawal of KPWU's Contests to Claims 671, 672, 673 and that Portion of Claim 612 Pertaining to the Klamath River and Conditional and Interim No-Call Provisions by the United States and Klamath Tribes ("Order on Amended Stipulation"). The Order on Amended Stipulation is intended to implement the Amended Stipulation. The Order on Amended Stipulation supersedes and replaces the Order on Stipulation.

The Order on Amended Stipulation states that certain of its terms "shall be included in the Proposed Order on Claims 671, 672, 673 and 612." However, the Proposed Order does not explicitly include those terms or otherwise reference the Order on Amended Stipulation.

To provide clarity as to the status of the Order on Amended Stipulation, the Adjudicator adopts the Order on Amended Stipulation,⁴ except as described below, and incorporates into this Partial Order of Determination the relevant terms, as follows:

1. Regarding Contests 3657, 3658, 3659, and 3644 filed by KPWU,⁵ the following terms are a part of this Partial Order of Determination.

⁴ Even if the ALJ erred in failing to reference or incorporate the Order on Amended Stipulation in the Proposed Order, OWRD has the authority, which the Adjudicator hereby exercises, to incorporate terms of the Amended Order into this Partial Order of Determination. OAR 137-003-0665; 137-003-0655. The Claimants properly raised this issue in exceptions to which Contestants had an opportunity to respond.

⁵ For purposes of this Order, Klamath Project Water Users include Tulelake Irrigation District, Klamath Irrigation District, Klamath Drainage District, Klamath Basin Improvement District, Ady District Improvement Company, CORRECTED PARTIAL ORDER OF DETERMINATION
CLAIMS 671-673 (Klamath River and its tributaries)

- a. Subject to paragraph 1.b, KPWU may file exceptions in the Circuit Court to the Findings of Fact and Order of Determination on Claims 671, 672, 673, and Claim 612,⁶ consistent with ORS 539.150. Nothing in the Amended Stipulation or this “Order on Amended Stipulation” section of this Partial Order of Determination shall limit the exceptions which the United States, the Klamath Tribes and KPWU (collectively, the “Parties to the Amended Stipulation”) may pursue or oppose in the Circuit Court, or the use they may make of the Findings of Fact and Order of Determination on Claims 671, 672, 673, and 612 in the Circuit Court. The Parties to the Amended Stipulation have, and have had since the entry of the 2009 Stipulation, no further discovery obligations regarding each other during the contested case process before the Office of Administrative Hearings or OWRD.
 - b. If none of the events described in paragraph 2.c.i have occurred and the Secretary publishes the notice under section 15.3.4.A of the KLAMATH BASIN RESTORATION AGREEMENT FOR THE SUSTAINABILITY OF PUBLIC AND TRUST RESOURCES AND AFFECTED COMMUNITIES (“Restoration Agreement”) (including a notice under section 15.3.4.A following its amendment as provided in section 15.3.4.B of the Restoration Agreement, as applicable), KPWU shall refrain from filing exceptions to the Findings of Fact and Order of Determination or, if exceptions to the Findings of Fact and Order of Determination have already been filed, timely cease any litigation on exceptions and file the necessary pleading to dismiss their exceptions and the conditional withdrawal by KPWU of their Contests 3657, 3658, 3659, and 3644 shall become permanent and no longer conditional.
2. Regarding Claims 671, 672, 673, and 612, the following terms are a part of this Partial Order of Determination, with the following clarification. This Partial Order of Determination denies the claimed water rights in their entirety. As a result, this paragraph 2, which limits the scope or extent of a call made by the Klamath Tribes and United States under any water rights that have been determined under Claims 671, 672, 673, and 612, is inapplicable. This Paragraph 2 is nonetheless incorporated into this Partial Order of Determination in the event that a decree is ultimately entered that approves some part or all of Claims 671, 672, 673, and 612. In that event, this Paragraph 2 would take effect.
 - a. From the time the Amended Stipulation was filed until the On Project Plan Implementation Deadline, any exercise of the water rights determined for

Enterprise Irrigation District, Malin Irrigation District, Midland Improvement District, Pine Grove Irrigation District, Pioneer District Improvement Company, Poe Valley Improvement District, Shasta View Irrigation District, Sunnyside Irrigation District, Don Johnston & Son, Bradley S. Luscombe, Randy Walthall and Inter-County Title Co., Inter-County Properties Co., Randolph and Jane Walthall 1995 Trust, Winema Hunting Lodge, Inc., Van Brimmer Ditch Co., Collins Products LLC and Plevna District Improvement Company.

⁶ As used in this “Order on Amended Stipulation” section of this Partial Order of Determination, the term “Claim 612” refers to Claim 612 insofar as it adopts and incorporates by reference Claims 671, 672 and 673.

Claims 671, 672, 673, and 612 (the “Tribal Water Rights”) shall not result in regulation curtailing use of water under any water rights having a priority date before August 9, 1908.

- b. After the On Project Plan Implementation Deadline, any exercise of the water rights determined for Claims 671, 672, 673, and 612 shall not result in regulation curtailing use of water under any water rights having a priority date before August 9, 1908, except that the exercise of the water rights determined for Claims 671, 672, 673, and 612 may seek regulation such that DIVERSION (as defined in Appendix E-1 of the Restoration Agreement) is equal to the maximum DIVERSION that can occur if Appendix E-1 of the Restoration Agreement has been filed and is in effect. The exception that applies under this paragraph 2.b applies at all times after the On Project Plan Implementation Deadline, regardless of whether Appendix E-1 has in fact been filed and is in effect at that time.
- c. If the following events have all occurred, the conditional limitations on the exercise of the Tribal Water Rights set out in paragraph 2.a and paragraph 2.b above shall cease and be of no further force or effect:
 - i. The Restoration Agreement has terminated without the Secretary of the Interior having published a notice under either section 15.3.4.A or 15.3.4.C of the Restoration Agreement, or the Secretary of the Interior has published the notice in the Federal Register described in section 15.3.4.C of the Restoration Agreement, or the Klamath Tribes have withdrawn from the Restoration Agreement under section 33.2.2 of the Restoration Agreement; and
 - ii. KPWU have fully litigated the Parties to the Amended Stipulation’s exceptions to the Findings of Fact and Order of Determination for Claims 671, 672, 673, and 612 consistent with the processes described in section 15.3.2.B.ii.b of the Restoration Agreement or have foregone their final opportunity to fully litigate the Parties to the Amended Stipulation’s exceptions pursuant to such processes; and
 - iii. Following KPWU’s litigation of exceptions as provided in paragraph 2.c.ii immediately above or following KPWU having foregone the final opportunity to fully litigate exceptions as provided in paragraph 2.c.ii immediately above, a judgment or decree (or amended judgment or decree) has been issued regarding Claims 671, 672, 673, and 612 under ORS 539.150(4) or 539.190 and is operative.
- d. If none of the events described in paragraph 2.c.i have occurred and the Secretary publishes the notice described in section 15.3.4.A of the Restoration Agreement (including a notice under section 15.3.4.A following its amendment as provided in section 15.3.4.B of the Restoration Agreement, as

applicable), then the conditional limitations on the exercise of the Tribal Water Rights set out in paragraph 2.a and paragraph 2.b above shall become permanent and unconditional.

- e. For purposes of this paragraph 2, “On Project Plan Implementation Deadline” means the applicable deadline for full and complete implementation of the On Project Plan as established under sections 15.3.8.A or 15.3.8.B of the Restoration Agreement

In addition to the incorporation of these terms, the Adjudicator makes the following findings with respect to the incorporated terms:

1. The provisions in paragraph 2.a. and paragraph 2.b, above, limit the scope or extent of a call made by the Klamath Tribes and United States. As described above, paragraphs 2.a and 2.b, above, are inapplicable under the terms of this Partial Order of Determination. In the event that a water right is ultimately decreed for any part of Claims 671, 672, 673 or 612, and paragraphs 2.a. and 2.b become effective, such provisions do not change the principle that any regulation by OWRD curtailing use of water shall be as provided in ORS 540.045(1)(a), based on the priority of regulated rights, with the latest priority right curtailed first.
 2. Nothing in the Amended Stipulation diminishes, affects, defines, or resolves in any way: (a) the rights of Contestants other than KPWU to contest or oppose Claims 671, 672, 673, and 612; or (b) any contests other than Contests 3657, 3658, 3659, and 3644; or (c) any other claims of the Claimants. Nothing in the Amended Stipulation diminishes, affects, defines, or resolves in any way any other water rights or any other claim, contest, or case in the Klamath Basin Adjudication. In addition, nothing in the Amended Stipulation defines, or is intended to define, the scope and attributes of the Tribal Water Rights, either to satisfy the Tribes’ treaty rights or otherwise.
14. On April 14, 2010, Claimants and Contestant PacifiCorp entered into that certain “Settlement Agreement Between PacifiCorp, the Klamath Tribes, and the United States Bureau of Indian Affairs as Trustee on Behalf of the Klamath Tribes” (Settlement Agreement) to resolve PacifiCorp’s contests. Pursuant to the Settlement Agreement, Claimants, PacifiCorp, and OWRD executed a “Stipulation to Resolve Contests 2062, 2064, 2065 and 2066” effective May 7, 2010 and ordered by Administrative Law Judge Joe Allen on June 28, 2010. On July 26, 2010, PacifiCorp filed a related Notice of Withdrawal of Contests.

The Stipulation to Resolve Contests 2062, 2064, 2065 and 2066 executed by the Claimants, PacifiCorp and OWRD is adopted and incorporated as if set forth fully herein.

B. DETERMINATION

1. The Proposed Order is adopted and incorporated, with modifications, into this Partial Order of Determination as follows:
 - a. The "Procedural History" is adopted in its entirety.
 - b. The "Evidentiary Rulings" is adopted in its entirety.
 - c. The "Expert Testimony" is adopted in its entirety.
 - d. The "Issues" is adopted in its entirety.
 - e. The "Findings of Fact" is adopted with modifications, as set forth in Section A.8, above.
 - f. The "Conclusions of Law" is adopted with modifications, as set forth in Section A.9, above.
 - g. The "Opinion" is replaced is adopted with modifications, as set forth in Section A.10, above.
 - h. The section titled "Order" is replaced in its entirety as set forth in Section A.11, above. Consistent with Sections A.8, A.9, A.10, A.11 and A.12, above, the outcome of Order has been modified to reflect the denial of Claims 671, 672, and 673.
 - i. The "Attachment A" is not incorporated into this Partial Order of Determination, as set forth in Section A.12, above.
 - j. The "Order on Amended Stipulation" is adopted with relevant terms and certain exceptions as set forth in Section A.13, above.

2. Both the United States and the Klamath Tribes filed claims based on the hunting, trapping, fishing and gathering purposes of the Klamath Treaty of 1864. The Klamath Tribes' Claim 612 incorporates the United States' claims in this case by reference. The Klamath Tribes' claims are duplicative of the United States' claims, not additive. The United States holds the rights recognized herein in trust for the Klamath Tribes. *Colorado River Water Conservation Dist. v. United States*, 424 US 800, 810 (1976). As a result, Claim 612 is denied. Claim 612 is addressed in a separate Partial Order of Determination for Claim 612, and the United States' Claims 671 – 673 are determined in this Partial Order of Determination for Claims 671 – 673.

3. Based on the file and record herein, IT IS ORDERED that Claims 671 – 673 are denied and are of no force or effect.

Dated at Salem, Oregon on February 28, 2014



 Dwight French, Adjudicator
 Klamath Basin General Stream Adjudication

PROPOSED ORDER

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

~~Pacificorp; Water Watch of Oregon, Inc.; Horsefly
Irrigation District; Langell Valley Irrigation District;
Medford Irrigation District; Rogue River Valley
Irrigation District; Roger Nicholson; Richard Nicholson;
NBCC, LLC; Agri Water, LLC; Maxine Kizer;
Ambrose McAuliffe; Susan McAuliffe; 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 & Hawkins; Harlow Ranch; Terry M. Bengard;
Tom Bengard; Robinson Best; Mebane; Helen Mebane;~~

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WATER RESOURCES DEPT
SALEM, OREGON

PROPOSED ORDER

Case No. 282

Claims: 671, 672, 673, and that Portion
of Claim 612 pertaining to the
Klamath River

Contests: ~~2062, 2064, 2065, 2066~~¹,
~~3016, 3070, 3071, 3072~~², ~~3249,~~
~~3257, 3258, 3259~~³, ~~3314~~⁴,
~~3373, 3374, 3375, 3644, 3657,~~

¹ Pacificorp voluntarily withdrew from Contests 2062, 2064, 2065, and 2066 on July 26, 2010.

² Water Watch of Oregon, Inc.'s contests 3016, 3070, 3071, and 3072 were dismissed. ORDER DISMISSING WATERWATCH OF OREGON, INC.'S CONTESTS, May 20, 2003.

³ Horsefly Irrigation District and Langell Valley Irrigation District voluntarily withdrew from Contests 3249, 3257, 3258 and 3259 on October 16, 2003. Medford and Rogue River Valley Irrigation Districts voluntarily withdrew from Contests 3249, 3257, 3258 and 3259 on June 14, 2006.

⁴ On October 31, 2003, William Bryant voluntarily withdrew from Contest 3314. On October 26, 2004, Dave Wood voluntarily withdrew from Contests 3314 and 3373-3375. Change of Title Interest for Contests 3314, and 3373-3375 from Roger Nicholson Cattle Co. to Agri Water, LLC (2/4/05). Change of Title Interest for Contests 3314 and 3373-3375 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 Contest 3314 and 3373-3375 from William and Ethel Rust to David Cowan (3/9/05). Change of Title Interest for Contest 3314 and 3373-3375 from Walter Seput to James Wayne, Jr. (5/2/05). Change of Title Interest for Contests 3314 and 3373-3375 from Jim McAuliffe, McAuliffe Ranches, and Joe McAuliffe Co. to Dwight and Helen Mebane (7/8/05). Change of Title Interest for Contests 3314 and 3373-3375 from Anita Nicholson to Nicholson Investments, LLC (7/8/05). Change of portion of Title Interest for Contests 3314 and 3373-3375 from Dwight and Helen Mebane to Sevenmile Creek Ranch, LLC (8/15/05). Kenneth Zamzow voluntarily withdrew from Contests 3314, 3373-3375 on September 2, 2005. William Knudtsen voluntarily withdrew from Contests 3314, 3373-3375 on September 13, 2005. Change of Ownership filed for Contests 3314 and 3373-3375 reflecting that William V. Hill is deceased and his ownership rights transferred to Lillian M. Hill (6/15/06). Sevenmile Creek Ranch, LLC voluntarily withdrew from Contests 3314, 3373-3375 on March 1, 2007. Franklin Lockwood Barnes, Jr. and Jane M. Barnes voluntarily withdrew from Contests 3314 and 3373-3375 on April 6, 2007. Mary Jane Danforth voluntarily withdrew from Contests 3314 and 3373-3375 on June 19, 2008. Modoc Point Irrigation District voluntarily withdrew from Contests 3373-3375 on November 13, 2008. Change of Title Interest for Contest 3314 and 3373-3375 from Robert Bartell to Michael LaGrande (1/9/09). Change of Title Interest for Contests 3314, 3373-3375 from 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 Contests 3314, 3373-3375 on January 15, 2010. Change of portion of Title Interest for Contests 3314, 3373-3375 from Roger Nicholson and Richard Nicholson to NBCC, LLC (3/17/2010). Change of Title Interest for Contests 3314 and 3373-3375 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).

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 Marengo; Jerry L. Neff & Linda R. Neff; ~~Klamath Irrigation District; Klamath Drainage District; Tulelake Irrigation District; Klamath Basin Improvement District; Ady District Improvement Company; Enterprise Irrigation District; Malin Irrigation District; Midland District Improvement Company; Poe Valley Improvement District; Shasta View Irrigation District; Sunnyside Irrigation District; Don Johnston & Son; Modoc Lumber Co.; Bradley S. Lusecombe; Berlva Pritchard; Don Vincent; Randy Walthall; InterCounty Title Co.; Winema Hunting Lodge, Inc.; Van Brimmer Ditch Co.; Plevna District Improvement Company; Collins Products, LLC;~~

3658, 3659⁵, 3932, 3933, 3934, 4002, 4061, 4062, 4063

Contestants

vs.

United States, Bureau of Indian Affairs, as Trustee on behalf of the Klamath Tribes;

Claimant/Contestant, and

The Klamath Tribes;

Claimant/Contestant.

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WATER RESOURCES DEPT
SALEM, OREGON

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 282 (Case 282) involves three claims, all involving the Klamath River outside the boundaries of the former Klamath Indian Reservation. Unlike the claims for

⁵ Don Vincent voluntarily withdrew from Contest 3644, 3657, 3658, and 3659 on December 4, 2000. Berlva Pritchard voluntarily withdrew from Contests 3644, 3657, 3658, and 3659 on June 24, 2002. Klamath Hills District Improvement Company voluntarily withdrew from Contests 3644, 3657, 3658, and 3659 on January 15, 2004. The remaining entities comprising Klamath Project Water Users, conditionally withdrew from Contests 3644, 3657, 3658, and 3659 on May 18, 2009. See STIPULATION OF CONDITIONAL WITHDRAWAL OF KPWU'S CONTESTS TO CLAIMS 671, 672, 673, AND THAT PORTION OF CLAIM 612 PERTAINING TO THE KLAMATH RIVER AND CONDITIONAL AND INTERIM NO-CALL PROVISIONS BY THE UNITED STATES AND KLAMATH TRIBES (MAY 18, 2009).

individual water rights filed in this adjudication, Case 282 involves tribal claims for instream water rights. Claimants are the Klamath Tribes (Tribes) and the United States Bureau of Indian Affairs (BIA) as Trustee on behalf of the Tribes.⁶ The remaining 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 a preliminary evaluation (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 282 addresses those claims to water within the Klamath River.

On July 8, 2005,⁷ the Tribes and the BIA filed a Joint Motion for Ruling on Legal Issues (Summary Determination). On that same date, UBC and other contestants no longer participating in these proceedings filed their own Motions for Ruling on Legal Issues. On February 13, 2007, Administrative Law Judge (ALJ) Maurice L. Russell II issued an Amended Order on Motions for Rulings on Legal Issues (Amended Order).⁸ 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 the question of entitlement to off-reservation waters as well as the quantification of Claimants' water rights for hearing.⁹

⁶ 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.

⁷ 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.

⁸ On November 7, 2007, ALJ Rick Barber issued an Order on Motions for Rulings on Legal Issues. ALJ Russell issued the Amended Order to address certain requests for modification, correction, or reconsideration filed by the parties.

⁹ 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. Those rights have not been abandoned under State law, since it does not apply. Claimants are not precluded from their claims for instream rights by the doctrines of preclusion, issue preclusion or claim preclusion. Equitable defenses are not available.

2. *Adair I* and *Adair II* are controlling precedent throughout the former reservation lands in the particulars noted above.

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On June 4, 2010, Contestants filed Amended Statements of Contest (Amended Contest) as permitted by the schedule of proceedings in this matter. In the Amended Contests, Contestants incorporated previously raised contests and asserted new contests to the claims.¹⁰

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. On October 1, 2010, the parties filed written direct testimony and exhibits. On February 7, 2011, the parties filed written rebuttal testimony and exhibits. An in-person cross-examination hearing convened

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.

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.

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.

10. The United States Bureau of Indian Affairs, as trustee for the Klamath Tribes, are entitled to participate in these proceedings as a party.

(Amended Order at 34 and 35. **Bold** and ~~strikethrough~~ omitted.)

¹⁰ 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.

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on April 18, 2011, in Salem, Oregon, with Senior ALJ Allen presiding.¹¹ At that time, the parties elected to conduct no cross-examination of any witness in this case. Between October 8 and December 5, 2011, the parties filed closing, response, and reply briefs. The record closed on December 5, 2011.

At the hearing, and in closing briefs, the parties raised several arguments identical to those raised by these same parties in earlier cases.¹² Because those arguments raise legal, rather than factual disputes, the analysis of those arguments, in this order, mirrors that of previous orders.

EVIDENTIARY RULINGS

Prior to the in-person hearing, the parties in this matter filed hundreds of 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 February 22, 2011. The parties filed responses to objections on or about March 7, 2011. On April 8, 2011, the ALJ issued a Consolidated Ruling on Objections. That ruling is 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 less compelling “battle of experts” than previous cases in this adjudication. In fact, Contestants’ only expert evidence on the hydrology in this matter is recycled testimony from case 277 (282-UBC-700, Testimony of Chuck H. Hansen in Case No. 277), which applied to the Sprague, Sycan, Wood, and Williamson rivers. UBC offered no expert testimony directly applicable to the reaches of the Klamath River at issue here.

To the contrary, Claimants and OWRD provided extensive expert testimony regarding the methodologies for the claim levels and the amount of water available in the claimed reaches. In addition, 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. OWRD submitted the methodologies used in Cooper 2002 and 2004 to peer review before adopting the results.

The testimony provided by Claimants’ experts and those of OWRD appears 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’ and OWRD’s experts including Dr. Reiser, Mr. Hart, Mr. Ramey, and Mr. Cooper.¹³

¹¹ 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.

¹² See post hearing briefs in cases 277 through 281 as well as cases 284 and 285.

¹³ The testimony of Richard E. Cooper, presented as Exhibit 282-OWRD-65, was initially offered in Case 279. However, the testimony applies to streamflow estimates and methodologies applied throughout the Klamath Basin. As such, the testimony is applicable to this case as to any other claiming instream flows within the Klamath Basin.

ISSUES

1. Whether Claimants are entitled to claim instream flows outside the boundaries of the former reservation in order to fulfill the purposes of the reservation.
2. Whether the claimed instream flows are necessary to establish a healthy and productive habitat to allow the exercise of the Klamath Tribes' on-reservation fishing rights guaranteed by the treaty of 1864.
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.

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, 16 Stats. 707; Ex. 282-KT-2; emphasis added.)

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 Williamson 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 gather¹⁴ 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*). The Court noted the historical importance of hunting and fishing rights to the Tribes and agreed that a primary purpose of the reservation was to "secure to the Tribe a continuation of its traditional hunting and fishing lifestyle." *Id* at 1409.

¹⁴ The fish, animal, and plant species subject to the Tribes' aboriginal rights are referred to throughout this order as "treaty resources."

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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. 282-KT-68 and 282-KT-1, 282-US-100, and 282-US-128.)

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. (Exs. 282-KT-1, 282-KT-4, 282-KT-100, 282-US-100, and 282-US-105 through 282-US-110.)

6. Prior to construction of dams downstream of the former reservation, adult Chinook salmon and steelhead trout¹⁵ migrated from the Pacific Ocean, up the Klamath River, into Upper Klamath Lake, and eventually into the rivers and streams within the former reservation to spawn. Their offspring would spend the fry and juvenile life stages in these waters before migrating downstream to the Pacific Ocean. The Tribes relied on these migratory fish runs as a primary food source. Salmon provided up to one-half of the food necessary for subsistence of tribal members each year. The Tribes also traded salmon and other fish with other tribes as well as white explorers and settlers. Beginning in 1914, construction of dams downstream of the former reservation has prevented salmon from entering the rivers and streams on the former reservation. (Exs. 282-US-100, 282-US-105 through 110, 282-US-200, 282-KT-1, and 282-KT 100.)

7. The Tribes, along with federal and state agencies, are working toward reintroduction of anadromous treaty species into the Klamath Basin. To this end, the Federal Energy Regulatory Commission (FERC) has required PacifiCorp, who now operates the dams and hydroelectric facilities on the Klamath River, to provide upstream and downstream passage for the target species as a condition of relicensing. (Exs. 282-US-200, 282-US-203, 282-KT-1, and 282-KT-100.)

Claims and contests.

8. On or about April 29, 1997,¹⁶ the Klamath Tribes filed a Statement and Proof of Claim to the Use of Surface Waters of the Klamath River and its Tributaries¹⁷ (Claim 612). Through Claim 612, the Tribes adopted each claim filed by the BIA as trustee on behalf of the

¹⁵ Case 282 is concerned with passage habitat for salmon and trout species. These treaty resources are referred to as the "target species."

¹⁶ 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.

¹⁷ Statement and Proof of Claims are referred to throughout this order simply as claims.

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Tribes.¹⁸ On October 1, 1999, the Tribes filed an Amended Statement and Proof of Claim (Amended Claim 612). Amended Claim 612 adopted and incorporated the amended claims filed by the BIA as trustee except as to Claim 630. The Tribes' Amended Claim 612 retained the instream flow claims from the BIA's original Claim 630. On March 31, 2000, the Tribes filed an additional Statement and Proof of Claim. By letter attached to this filing, the Tribes informed OWRD of clerical errors in the previous claim filing. The March 31, 2000 claim filing purported to correct such errors. This Statement and Proof of Claim adopted and incorporated the claims filed by BIA without reservation. (OWRD Ex. 1 at 6 through 64.)

9. On April 30, 1997, the BIA filed Claims 671 through 673. On October 1, 1999, the BIA filed amendments to each of these claims. Each claim identified instream flows within the Klamath River, 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 identified 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." (OWRD Exs. 49 through 51.)

10. Claim 671 claimed instream flows in a reach of the Klamath River extending from the John C. Boyle Reservoir to the Oregon-California border to support migratory passage of anadromous salmonid fish species into and out of the Klamath River Basin. The claim asserted a water right for the period January 1 through December 31 each year. The claimed flows for physical habitat encompassed the natural up to 700 cfs. (OWRD Ex. 49 at 1 through 19; See also, Exs. 282-US-200 and 282-US-300.)

11. Claim 671 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 40 south, Range 7 east, Section 6, Southwest $\frac{1}{4}$, Northeast $\frac{1}{4}$ (T 40S, R 7E, S 6, SW $\frac{1}{4}$, NE $\frac{1}{4}$), distance from NW corner S $14^{\circ} 24' 25''$ E, 2,138.4 ft. The lower reach boundary is identified as T 41S, R 5E, S 13, NE $\frac{1}{4}$, NW $\frac{1}{4}$, distance from NW corner S $70^{\circ} 58' 60''$ E, 1,918.3 ft. (OWRD Ex. 49 at 17.)

12. In October 2010, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 671. In addition, the updated claim divided Claim 671 into three distinct sub-reaches, designated as 671a, 671b, and 671c. The updated claim resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as in-depth studies of the physical passage needs, conducted by BIA's experts. The updated claim was capped at the lesser of necessary stream flow for adult upstream passage habitat, juvenile/smolt downstream travel needs, or the 1997 claim, whichever was lower. For Claim 671, this updated calculation resulted in reduced claim flows in every month and no claimed flows for one and a half months. (Exs. 282-US-200, 282-US-224, 282-US-225, 282-US-300, and 282-US-302 through 282-US-307.)

13. Claim 672 claimed instream flows in a reach of the Klamath River extending from the Keno Dam to the John C. Boyle Reservoir to support migratory passage of anadromous salmonid fish species into and out of the Klamath River Basin. The claim asserted a water right for the

¹⁸ For the purposes of this order, Claim 612 incorporates Claims 671, 672, and 673.

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period January 1 through December 31 each year. The claimed flows for physical habitat encompassed the natural up to 700 cfs. (OWRD Ex. 50 at 1 through 13; *See also*, Exs. 282-US-200 and 282-US-300.)

14. Claim 672 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 39S, R 7E, S 36, SW $\frac{1}{4}$, NW $\frac{1}{4}$, distance from SW corner N $45^{\circ} 26' 40''$ E, 2,306.0 ft. The lower reach boundary is identified as T 39S, R 7E, S 29, SE $\frac{1}{4}$, NE $\frac{1}{4}$, distance from NE corner S $11^{\circ} 16' 24''$ W, 2,580.1 ft. (OWRD Ex. 50 at 12.)

15. In October 2010, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 672. The updated claim resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as in-depth studies of the physical passage needs, conducted by BIA's experts. The updated claim was capped at the lesser of necessary stream flow for adult upstream passage habitat, juvenile/smolt downstream travel needs, or the 1997 claim, whichever was lower. For Claim 672, this updated calculation resulted in reduced claim flows for five and one half months and no claimed flows for one and a half months. (Exs. 282-US-200, 282-US-226, 282-US-300, and 282-US-302 through 282-US-307.)

16. Claim 673 claimed instream flows in a reach of the Link River extending from Lake Ewauna to the Link River dam. The claim asserted a water right to support migratory passage of anadromous salmonid fish species into and out of the Klamath River Basin. The claim asserted a water right for the period January 1 through December 31 each year. The claimed flows for physical habitat encompassed the natural up to 700 cfs. (OWRD Ex. 5 at 1 through 4.)

17. Claim 673 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 7E, S 9, SE $\frac{1}{4}$, NE $\frac{1}{4}$, distance from NW corner S $1^{\circ} 55' 54''$ E, 1,937.7 ft. The lower reach boundary is identified as T 35S, R 7E, S 3, NW $\frac{1}{4}$, NW $\frac{1}{4}$, distance from NW corner S $61^{\circ} 20' 14''$ E, 337.3 ft. (OWRD Ex. 5 at 16.)

18. In October 2010, Claimants filed their written direct testimony and exhibits. Claimants' evidence reflected downward adjustments of Claim 673. In addition, the updated claim divided Claim 673 into two distinct sub-reaches, designated as 673a and 673b. This was necessary to account for alterations in hydrologic conditions resulting from the operation of a hydroelectric power station. The updated claim resulted from basin wide stream flow estimates developed by OWRD between 2000 and 2004 as well as in-depth studies of the physical passage needs, conducted by BIA's experts. The updated claim was capped at the lesser of necessary stream flow for adult upstream passage habitat, juvenile/smolt downstream travel needs, or the 1997 claim, whichever was lower. For Claim 673, this updated calculation resulted in reduced claim flows for four months and no claimed flows for one and a half months. (Exs. 282-US-200, 282-US-224, 282-US-228, 282-US-300, and 282-US-302 through 282-US-307.)

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Stream flow estimates provided by OWRD.

19. In the late 1980s and early 1990s, 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. (Ex 282-OWRD-65.)

20. OWRD developed a method to estimate the natural stream flow in watersheds throughout Oregon.¹⁹ 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. (Ex. 282-OWRD-65.)

21. 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. (Ex. 282-OWRD-65.)

22. In 2002, Richard M. Cooper, P.E.,²⁰ developed a report entitled Determining Surface Water Availability in Oregon (Open File Report SW 02-002), referred to herein as "Cooper 2002." Cooper 2002 describes the methodology employed by OWRD for determining surface water availability. (Exs. 282-OWRD-65 and 282-OWRD-69.)

23. 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. (Exs. 282-OWRD-65 and 282-OWRD-68.)

24. 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

¹⁹ 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. (Ex. 282-OWRD-65.)

²⁰ 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 Resource Specialist 4 (Hydrologist) from 1992 until approximately 2009. Mr. Cooper maintained primary responsibility for OWRD's Water Availability Program during his employment. (Exs. 282-OWRD-67 and 282-OWRD-65 at 2 through 3.)

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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. 282-OWRD-65.)

25. OWRD established a base period of 1958 through 1987 for watershed measurements at index stations.²¹ 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. (Exs. 282-OWRD-69 and 282-US-300.)

26. 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. 282-OWRD-65 and 282-US-300.)

27. 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. 282-OWRD-65 and 282-US-300.)

28. 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. 282-US-300.)

29. 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. (Exs. 282-OWRD-65 and 282-US-300.)

30. Claimant BIA's expert, Michael Ramey, P.E., 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. 282-US-300.)

31. 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,

²¹ 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.)

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Ph.D., and senior fisheries scientist Dudley Reiser, Ph.D., to develop the riparian and physical habitat claims. (Ex 282-US-300.)

32. 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. 282-US-300.)

Development of physical and riparian habitat claims.

33. The physical habitat claims are intended to identify the monthly stream flows necessary for instream fish habitat in a given reach. This includes passage habitat and juvenile rearing habitat, where appropriate. 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 15 years of scientific work on the project. (Exs. 282-US-200, 282-US-223, 282-US-226, 282-US-227, and 282-US-300.)

34. The physical habitat claims are designed to ensure instream flows necessary to establish and maintain a healthy and productive habitat for anadromous 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. Instream environments provide living space, food, protection from predation, and spawning area. (Exs. 282-US-200 and 282-US-300.)

35. Salmon and steelhead trout are anadromous salmonids, meaning they live their adult lives in saltwater environments but migrate up freshwater rivers and streams for spawning. Salmon and trout species historically present in the basin migrated from the Pacific Ocean in order to spawn in the streams of the Upper Klamath Basin. (Ex. 282-US-200.)

36. In the context of fish passage, healthy and productive habitat must provide sufficient water to allow both upstream and downstream migration of the target species at specific lifestages. To accomplish this, the physical habitat must have sufficient flows and depth to support juvenile downstream rearing and migration and adulthood upstream migration. At present, the target species have been excluded from the basin due to obstructions created by the PacifiCorp dams. As such, they are not available for Tribal harvest. (Exs. 282-US-200, 282-KT-1 and 282-KT-100.)

37. Dr. Reiser developed habitat-flow relationships using the Instream Flow Incremental Methodology coupled with Physical Habitat Simulation models (IFIM/PHABSIM) and the Oregon Method, where appropriate.²² These methodologies allowed Dr. Reiser to ascertain the

²² 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). (Exs. 282-US-200, 282-US-223, 282-US-226, 282-US-227, and 282-US-300.)

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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. These calculations allowed Dr. Reiser to determine the instream flows necessary to provide adequate upstream passage that will allow the target species to reach the rivers and streams within the former reservation. They also allowed Dr. Reiser to determine the flows necessary to provide adequate rearing habitat and passage velocity to enable target species at the juvenile/smolt stage to migrate downstream to the Pacific Ocean while avoiding predation and obstruction. (Exs. 282-US-200 and 282-US-300.)

38. 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.²³ (Ex. 282-US-300).

39. Both the 1997 Claims and the updated claims presented in 2010 used the Oregon Method and IFIM/PHABSIM as a basis for claimed flows. Between 1997 and 2010, 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 continued data collection, 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 1997 Claims. Dr. Reiser determined the instream flows reflected in the updated physical habitat claims are sufficient to provide healthy and productive passage and rearing 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. 282-US-200 and 282-US-300.)

40. The updated claims are represented in Attachment A to this order.

CONCLUSIONS OF LAW

1. Claimants are entitled to claim instream flows outside the boundaries of the former reservation in order to fulfill the purposes of the reservation.

2. The claimed instream flows are necessary to establish a healthy and productive habitat to allow the exercise of the Klamath Tribes' on-reservation fishing rights guaranteed by the treaty of 1864.

²³

Dr. Reiser identifies the nine steps as follows:

- Step 1- Compilation and Review of Relevant Literature and Data;
- Step 2- Identification and Selection of Claim Reaches and Study Sites;
- Step 3- Identification of Target Fish Species and Their Lifestage Periodicity;
- Step 4- Development of Species Habitat Suitability Criteria (HSC) Curves;
- Step 5- Field Data Collection;
- Step 6- Hydraulic/Habitat Modeling and Adult Passage Analysis;
- Step 7- Hydrologic Limitations- Median Flow Threshold;
- Step 8- Travel Time Computation; and
- Step 9- Other Flow Considerations- Limitation of 1997 Flow Claim.

(Ex. 282-US-200 at 92.)

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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.

OPINION

Previous cases have addressed instream water rights on former reservation lands as well as instream water rights for certain reaches outside the former reservation which flow onto the reservation. Here, Claimants seek to maintain instream flows within several reaches, constituting approximately 35 miles of the Klamath River that begin below the southernmost boundary of the former reservation and end at the Oregon-California border. Below Upper Klamath Lake, the Klamath River flows south until it crosses the California border, and continues to its termination at the Pacific Ocean.

In prior cases, this tribunal has approved Claimants' instream water rights in reaches outside the former reservation as necessary to accomplish a primary purpose of the reservation. These determinations were based upon the necessity of such waters to fulfill important biological needs of treaty species and the claimed reaches' connection to waters within the boundary of the former reservation, as well as the fact that such off-reservation waters flowed onto former reservation lands.

Here, Claimants seek to lay claim to waters outside the former reservation after those waters have left the reservation and traveled through Upper Klamath Lake, heading for the California border. To succeed, Claimants must demonstrate they are entitled, both legally and factually, to such off-reservation waters. (Amended Order at 25.) To do this, Claimants must show that the water right claimed was implied at the time of signing the Treaty and that such water is necessary to accomplish a primary purpose of the reservation created by the Treaty of 1864.

I. Canons of construction for Indian treaties.

It is well established that treaties between the United States and Indian tribes are to be construed liberally in favor of the Indians. Ambiguities in treaty terms are resolved in favor of the Indian tribes. *Antoine v. Washington*, 420 U.S. 194 (1975) (citing *Choate v. Trapp*, 224 U.S. 665 (1912)); *See also, Winters v. United States*, 207 U.S. 564 (1908). Treaty provisions are to be interpreted as the Indians likely would have understood them at the time of signing. *Washington v. Fishing Vessel Assn.*, 443 U.S. 658 at 676 (1979) (citing *Jones v. Meehan* 175 U.S. 1. (1899).); *See also, Tulee v. Washington*, 315 U.S. 681 (1942), and *United States v. Winans*, 198 U.S. 371 (1905). In addition, treaties are to be interpreted in such a manner that supports, rather than defeats, the central purposes of the agreement between the signatory tribes and the United States. *Winters*, 207 U.S. at 576 (1908).

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If Claimants demonstrate the treaty at issue supports an implicit understanding that sufficient water would be available, in the claimed reaches, to provide habitat and passage necessary for anadromous treaty species to reach the former reservation in order to allow the Tribes to exercise their on-reservation treaty rights, they have demonstrated a legal entitlement to the claimed instream waters. Claimants must also demonstrate the Treaty provisions recognized the historical presence and harvest, and contemplated the continued presence and harvest, of the anadromous species at issue, within the former reservation.

II. *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 do not 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 statutes 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 Panter, as well as ALJs Barber and Russell. Judge Panter 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 Panter's opinion provides instructive guidance on these and other issues relevant to the resolution of the claims before me.

In *Adair III*, Judge Panter 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*

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has quantified the Tribes' water rights under the principles announced in Adair I, the moderate living standard may be considered.

* * * * *

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 1282 (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

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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.

III. 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 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 salmon and trout within the former reservation. Such historical resource use data derives not only from prominent Tribal members (Chocktoot and Mitchell), but also from an historian with numerous years of expertise in Native American tribes of the Western United States (Hart). This data is also supported by multiple historical texts documenting the presence of the target species as well as the Tribes' reliance upon them.

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.

Interestingly, while Contestants argue for an elevated standard of proof to be applied to Claimants, they elect to proffer no direct testimony or evidence to support their individual contest grounds.

IV. Updated claims.

Contestants argue Claimants impermissibly amended the claims by changing the methodology and data used to calculate instream flow requirements. Contestants assert 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 October 2010.

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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.

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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 statute 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 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

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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 is not 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. When read in context of ORS Chapter 539 and OAR Chapter 690, OWRD's interpretation is plausible and consistent, and is entitled to deference.

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

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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 claims constitute partial withdrawal of earlier claimed flows, they are not prohibited by statute or rule in this adjudication.

V. 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 asserts 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 agree 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 is 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.

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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 be 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 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 agencies 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 find 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

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incorrect or that the alternatives presented are entitled to greater weight. Accordingly, I find Claimants' 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.

VI. Claimants have demonstrated instream flows outside the former reservation are necessary to permit exercise of the Tribes' on-reservation fishing rights.

OWRD and UBC argue Claimants are not entitled to off-reservation water to support on-reservation treaty rights. In support of this argument, UBC and OWRD rely on the Court's opinions in *Adair II* and *Oregon Department of Fish and Wildlife (ODFW) v. Klamath Indian Tribe*, 473 U.S. 753 (1985) for the principle that the Tribes' in-stream water rights are confined to the former reservation. As additional support, OWRD argues that no precedential decision has recognized off-reservation water rights to support on-reservation fishing rights. For the reasons set forth below, I do not agree with either argument.

As an initial matter, it must be noted that a lack of binding case law specifically supporting the claimed right is not dispositive. OWRD approaches this fact from the wrong angle. The relevant question is whether there is binding case law contrary to Claimants' position. If not, the question must be addressed as one of first impression. In this case, the parties have presented no case on point. Simply put, it appears no appellate court has addressed this particular question. Before the question can be addressed on appeal, it must be addressed by a trial court of competent jurisdiction. This adjudication presents the ideal vehicle to transport this issue up the appellate ladder, should the parties so choose. This tribunal therefore will endeavor to answer the question posed as one of first impression.

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, as in previous cases, 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 do not agree that instream flows claimed outside the reservation are prohibited in this case.

Contestants' and OWRD's reliance on *Adair II* and *ODFW* are misplaced. While it is true neither of those cases granted the Tribes' off-reservation water rights, the opinions must be viewed in context. Each of those cases dealt with the extent of the Tribes' on-reservation treaty rights and the implied water rights necessary to support those treaty rights. The courts in each case found the Tribes' treaty protected hunting, fishing, trapping, and gathering rights did not extend beyond the reservation. *See, ODFW*, 473 U.S. at 755 (1985). No party in either case raised the issue of whether the Tribes were entitled to off-reservation water to support on-reservation treaty rights. It is not surprising, therefore, that neither court chose to address a question not before it at the time.

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Here, the parties also expend considerable effort arguing over the interpretation and applicability of *Kittitas Reclamation Dist. v. Sunnyside Valley Irrigation Dist.*, 763 F.2d 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. Like the Yakima in *Kittitas* seeking to preserve a treaty resource, the Tribes claim instream flows off-reservation to protect passage habitat necessary for the exercise of their treaty rights.

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). Article 1 of the Treaty 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 * * *.” *Treaty of 1864*, 16 Stats. 707, emphasis added. The evidence presented at hearing demonstrates the harvest of salmon and other fish species was of central importance to the Tribes. The exclusive right of taking fish implies not only the right to exclude others from the rivers and streams within the former reservation, but also the implied understanding that those rivers and streams would continue to have fish for the Tribes to take. The evidence also suggests that the term “fish” as used in the Treaty included salmon, considering the integral role they played in the Tribes culture and subsistence practices.

At the time of Treaty signing, anadromous fish species made runs up the Klamath River and into the rivers and streams of the former reservation at least twice every year for generations. The fish in these runs were so numerous that tribal members were able to harvest up to one-half of their subsistence needs for an entire year. The Tribes had no reason to believe this would cease after signing of the Treaty with the United States. This is supported by the fact that tribal members continued to harvest salmon and other anadromous species, just as they always had, until construction of the first dam blocked fish passage in 1914. Based on the overwhelming weight of historical evidence, the right to take fish included the right to continue the salmon fishing practices that were central to the Tribes’ subsistence and culture. The exclusive right of taking fish implies fish to be taken; that includes salmon and other anadromous species. Should such species be reintroduced into the basin, the Tribes’ Treaty protected rights would certainly include the right to harvest such fish once again. Because the passage habitat claimed here is necessary for anadromous species to reach the former reservation, the Treaty must be interpreted to protect that right. To rule otherwise would render the Tribes’ fishing rights valueless and would be contrary to the canons of construction for Indian treaties.

For these reasons, I find Claimants are entitled to the claimed flows outside the former reservation identified in Claims 671, 672, and 673.

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Currently, the Tribes, along with state and federal agencies, are working toward the reintroduction of anadromous species into the basin. If successful, salmon and steelhead trout may once again be available for harvest by the Tribes. If unsuccessful, these passage claims would never go into effect. As such, the passage habitat claims represent water necessary to accomplish one of the primary purposes of the reservation once anadromous species are reintroduced. Undoubtedly, these claims cannot be denied because anadromous species find their pathways into the basin temporarily impeded by dams.

VII. Claimants have demonstrated certain instream flow levels are necessary to establish and maintain a healthy and productive passage habitat for the target 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 outside former reservation land within the basin to support the on reservation exercise of treaty harvest rights. In this case, such water rights are limited by the amount of water necessary to allow the Tribes to exercise their treaty protected fishing rights within the boundaries of the former reservation. This is the amount of water necessary to establish and maintain a healthy and productive habitat that will enable the Tribes to exercise their aboriginal rights.

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 history reliance upon several species of fish, including extirpated anadromous species such as Chinook salmon and steelhead trout.

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. In the context of this case, that means instream flow that will allow upstream and downstream passage of the target species into the basin and, ultimately, the rivers and streams of the former reservation. 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, Claimants have satisfied their burden.

1. Instream flows necessary for fish passage habitat.

Anadromous species such as Chinook salmon and steelhead trout live in saltwater environments 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.

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KBA_ACFFOD_05414

Claimants' instream flow claims seek to provide a healthy and productive passage habitat for anadromous treaty species once reintroduced to the Basin. In other words, these claims cannot become effective unless and until a viable plan for reintroduction of the target species is developed and implemented.

At the hearing, Claimants provided extensive evidence on the level of water necessary, in each claim, to provide a healthy and productive instream passage habitat. This evidence included extensive data collection, modeling and analysis from highly experienced fish biologists, 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 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 at the lesser of a percentage of the weighted useable area within a stream or the 1997 claim level.

Claimants derived the passage habitat requirements using accepted methodologies. Primary among these were the IFIM/PHABSIM and the Oregon Method. Fishery biologists have used IFIM/PHABSIM for several decades to determine instream flow needs. Both methods are recognized by OWRD as acceptable methods for determining instream flows. See, OAR 690-028-0027(2). In developing the instream flow requirements for target fish species, Claimants considered the upstream passage needs of those species in the adult stage, as well as downstream passage and rearing needs of the target species at the juvenile/smolt stage. Throughout this adjudication, Claimants have continued to collect and analyze data in order to ensure the claimed flows were the no higher than necessary to support passage for the target species.

The passage habitat claims identified in Attachment A reflect the minimum amount of water necessary to establish and maintain healthy and productive instream passage habitats within the designated reaches if anadromous species are reintroduced to the basin. Until then, Claimants assert no claims to instream flows in the reaches at issue and this order should not be construed to grant such rights absent reintroduction of the target species.

VIII. 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 passage 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 claims filed in 1997.

The claims filed in 1997 claimed instream flows up to 700cfs in all reaches during every month of the year. Between 1997 and 2010, Claimants continued to collect data and perform analyses aimed at finding the minimum amount of water necessary. Based, in part, on information not available in 1997, Claimants were able to abandon large portions of the claims in

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favor of lower instream flow levels, which they determined were sufficient to accomplish the purposes of the reservation. The results were significantly reduced passage habitat claims for several moths and no claims for one and one-half months of every year. These significantly lower claim levels are reflected in Attachment A. Contestants offered no evidence indicating a lesser amount of water would accomplish the necessary fish passage into the basin. In fact, Contestants offered no affirmative evidence to support any contest ground raised. I find Claimants have demonstrated, by a preponderance of the evidence, the claimed flows represent the minimum amount necessary to establish and maintain the necessary fish passage through the claimed reaches.

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 as well as the Amended Order issued in this case over five years ago.

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 the 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.

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IX. 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 sight 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. Specifically in this case, the purpose is to determine how much, if any, water is necessary to establish passage habitat in the claimed reaches to allow target species to access the former reservation upon successful reintroduction.

To the extent UBC argues the Tribes ceded the lands at issue upon signing the Treaty of 1864, they are correct. However, that has little bearing on the question before this tribunal. The Tribes do not seek to confirm off-reservation water rights to support off-reservation treaty rights. Instead, the Tribes seek to confirm off-reservation water rights to support the on-reservation exercise of Treaty rights. If such waters are necessary to fulfill one or more purposes of the reservation, Claimants are entitled to whatever amount they prove necessary, but not more, to fulfill such purpose, regardless of property ownership.

To the extent UBC continues to argue in favor of limitations on Claimants' water rights through abrogation of the Tribes' Treaty rights 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.

X. 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.

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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 into effect seven years after the district court's recognition of the survival of the Tribes' Treaty rights and three years after the Ninth Circuit's confirmation of the 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.

XI. The Endangered Species Act is not a substitute for Claimants' instream water rights.

As a final matter, this order addresses UBC's argument that Claimants are not entitled to the claimed flows because they have failed to show that protections afforded to the target species under the Endangered Species Act (ESA) are insufficient. First, it must be noted that this argument was not raised by UBC in either their original or amended statements of contest. As discussed above, the statements of contest control the scope of the hearing. UBC had ample opportunity to raise this issue through properly filed statements of contest. It failed to do so. It cannot do so now.

Further, UBC provided no direct evidence to support any contest ground. To the extent UBC considered this a valid ground for contest, it failed to offer any evidence in support of this argument. Bare assertions in closing briefs are insufficient to support UBC's argument. UBC provide no evidence demonstrating that either target species is listed in the ESA. Absent such a designation, the protections of the ESA do not apply to the target species. For these reasons, UBC's argument lacks merit. The ESA is not a substitute for the federally reserved water rights at issue in this case.

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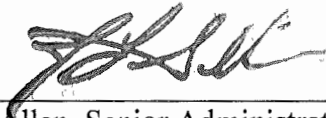
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ORDER

I propose OWRD issue the following order:

1. The claimed instream flows, reflected in 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 671, 672, 673, and those portions of Claim 612 that pertain to the Klamath River, are approved as reflected in Attachment A.



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

Date: April 16, 2012

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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 87 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 58 days after completion of the 90-day period for exceptions in case 286.

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**

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KBA Case No. 282 - Attachment A - Monthly Flow Values

(The table below is taken from page 42 of KBA Case No. 282, Corrected Joint Opening Post-Hearing Brief of Claimants United States Bureau of Indian Affairs and Klamath Tribes)

Table VII-1. Monthly Passage Habitat flow values for Klamath River Claim Reaches/Sub-reaches 671a, 671b, 671c, 672, 673a, and 673b. KBA Case # 282

	January	February	March	April	May	June	July	August	September	October	November	December
Claim Sub-Reach 671a												
Passage Habitat Claim flow value	200	400	400	400	400	400	--	--/230	230	230	230/200	200
Claim Reach 671b												
Passage Habitat Claim flow value	528	400	400	400	528	420	--	--/420	420	528	528	528
Claim Reach 671c												
Passage Habitat Claim flow value	100	400	400	400	400	400/200	--	--/200	200	100	100	100
Claim Reach 672												
Passage Habitat Claim flow value	420	420	700	700	700	700/400	--	--/700	700	700	700/420	420
Claim Reach 673a												
Passage Habitat Claim flow value	652	652	700	700	700	700	--	--/700	700	700	700/652	652
Claim Reach 673b												
Passage Habitat Claim flow value	347	347	700	700	700	700	--	--/700	700	700	700/347	347

(--) indicates no claim during the specified period

XXX/XXX - specifies two flow claims during the month; one applies to the first half and the second to the second half of the month.

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CERTIFICATE OF SERVICE

I hereby certify that on April 16, 2012, 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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David W. Harder

Certificate of Service; Case 282, Claims: 671-673, and that Portion of Tribal Claim 612 pertaining to the Klamath River.

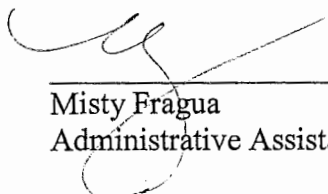
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