

**Comment Author** Dowd, Venola  
**Agency/Assoc.** Resighini Rancheria  
**Submittal Date** November 22, 2011

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1122_087	<p>Inclusion in the Klamath Settlement Group required consent of all the parties then participating in that group. DOI is aware that a party exercised its right in the spring of 2007 and blocked the inclusion of the Resighini Rancheria in the Klamath Settlement Group talks. This action did not and does not preclude the Resighini Rancheria from meaningfully participating in the natural resources issues implicated by the KHSA and KBRA. As described in Master Response KHSA-1 Negotiation of KHSA and KBRA, parties outside the Klamath Settlement Group had opportunities to give input regarding development of the KBRA during 2007-2010. At present, any party willing to support the KHSA and KBRA as currently crafted may become a signatory to the agreement. If the KBRA is implemented, DOI will still have to consult on a Government-to-Government basis with all tribes that have an interest in fish and water in the Klamath Basin. So, there still will be tribal – federal discussion regarding how water management and fish issues should be handled outside of the KBRA. For additional information on Tribal Involvement in Future Discussions of Water Management see Master Response TTA-7.</p> <p>Master Response TTA-1 Federal Trust Responsibility and the KBRA, describes in detail how the KBRA is consistent with upholding federal trust responsibility. The commenter’s assertion that implementation of the KBRA would compromise Klamath River senior water rights is unfounded, as further explained in Master Response TTA-1.</p> <p>Also, to the extent that the Resighini Rancheria’s “exclusion” complaint concerns the Klamath Facilities Removal EIS/EIR process, such a complaint would be unfounded. The Resighini Rancheria has been afforded all of the opportunities for public input and comment available under NEPA, CEQA, and the relevant implementing regulations, including the opportunity to submit comments on the Draft EIS/EIR to which the Lead Agencies are now responding. DOI has held many public meetings in the basin as described in Master Response GEN-16 Public Involvement and has consulted multiple times with all the basin tribes, including the Resighini Rancheria. The Resighini Rancheria is a cooperating agency for the EIS. However, the Resighini Rancheria does not have an absolute right to participate in the development of the proposed action and alternatives that are the subject of analysis in this EIS/EIR since the proposed action concerns potential decisions that would be made by the lead federal and state agencies.</p>	No
IT_LT_1122_087-2	Master Response FERC-1 FERC Process Status.	No
IT_LT_1122_087-3	Master Response GEN-2 Some People Approve of Dam Removal and Others Oppose Dam Removal.	No

IT\_MC\_1027\_055

KLAMATH DAM REMOVAL  
DRAFT EIS/EIR HEARING  
OCTOBER 27, 2011  
PUBLIC TESTIMONY  
KLAMATH, CALIFORNIA

MR. DUNLAP: James Dunlap, J-a-m-e-s

D-u-n-l-a-p --

-- on behalf of yurokvoices.com.

First off, I commend the individual groups that came together to address this problem. And special thanks for the watchdogs that are watching those members that made this Agreement.

You know, as a Yurok, I have an innate distrust of the United States Government, its agencies and its members on behalf of the United States Government. They have never had our best interests at heart.

Comment 1 - Approves of Dam Removal

Comment 2 - Economics

A couple of things that -- you know, I do

believe the dams are coming out, and it's a good thing.

The jobs, that will be interesting to see how that plays

out, just who will get the jobs and how they will be

disbursed, whether they go into the organizations, they

go to the big companies, or they go to the individuals.

You know, that's my concern. And if there's a preference

in those jobs.

Comment 3 - Water Quality

The water quality standards and the safeguards,

the fertilizers that were spoke about just earlier, you

know, I have to have a certain amount of trust in this

whole process and in believing that, you know, all these safeguards will be in place. You know, my experience on the big events, the smaller things that add up sort of get overlooked. And, you know, I will trust and I will hope that they're not overlooked in these situations, in providing not only the removal but their perpetuation of a healthy river.

Comment 4 - ITAs

One of the things, you know, that I speak on for

myself, and I think, I speak unofficially for a lot of Yurok members, that we're at odds with, and even in light of our Tribal Council endorsing the KBRA Agreement, and that's Section 15.3.6 A-1, the assertion -- or the waiving of our tribal water rights and our tribal fishing rights, in theory, or in any manner, the Appendix 1, a complete waiver and release of claims on behalf of the Yurok people.

I cannot believe that the Yurok people wish to waive our rights to our water, in theory or in manner. I do not believe we are endorsing any Agreement in which we have to give up our rights to the water or our rights to the fish, to have this river that is our life return to its natural state.

Thank you.

**Comment Author** Dunlap, James  
**Agency/Assoc.** Yurok Tribe  
**Submittal Date** October 27, 2011

<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1027_055-1	Master Response GEN-2 Some People Approve of Dam Removal and Others Oppose Dam Removal.	No
IT_MC_1027_055-2	The regional economic effects stated within Section 3.15, including job effects, are estimates. The estimated employment effects are modeled to occur in the identified economic regions and would be available to residents in the region. Estimated jobs include full time, part time, and temporary positions. Full realization of employment changes may not occur to the extent that businesses deal with changes in spending by adjusting the workload of existing employees or increasing their use of capital relative to labor. The purpose of the Draft EIS/EIR is to describe impacts, not to ensure preferential hiring.	No
IT_MC_1027_055-3	<p>As described in the Draft EIS/EIR Section 3.2.2.3 (p. 3.2-13 to 3.2-14), water quality in the Klamath River is impaired for several water quality parameters and does not fully support designated beneficial uses.</p> <p>As part of KBRA, continued agricultural use in the Reclamation's Klamath Project is part of the Purpose and Need Statement. The KBRA is a negotiated settlement and the Draft EIS/EIR does not analyze alternatives to the KBRA. Draft EIS/EIR Section 3.2.3.8 Inorganic and Organic Contaminants (p. 3.2-30 to 3.2-33) and Section (Appendix) C.7 (p. C-63 to C-72) present existing information on pesticides and herbicides in the Klamath Basin.</p> <p>The analyses conducted for the Draft EIS/EIR use the best available science and rely, in several cases, on peer reviewed studies undertaken as part of the Secretarial Determination process (e.g., sediment transport modeling, sediment contaminant analyses, short-term oxygen demand modeling, short-term fisheries impacts from suspended sediments). The peer reviewed reports can be downloaded from <a href="http://klamathrestoration.gov/keep-me-informed/secretarial-determination/role-of-science/secretarial-determination-studies">http://klamathrestoration.gov/keep-me-informed/secretarial-determination/role-of-science/secretarial-determination-studies</a>.</p> <p>Master Response WQ-4 Hydroelectric Project Impacts to Water Quality Anticipated KHS/KBRA Improvements.</p>	No
IT_MC_1027_055-4	Master Response TTA-1 Federal Trust Responsibility and the KBRA.	No

Larry Dansmoor

IT\_LT\_1019\_070

Terry 10/28/11  
#2

← Comment 1 - Approves  
of Dam Removal

The dams cause or contribute to many problems for the river and its fisheries. A partial list includes:

- very large daily swings in flow due to peaking,
- diversion of essentially all of the flow out of the river at one of the dams,
- problems with blooms of toxic algae,
- homogenization of flow and thermal regimes,
- heating the river in the late summer and early fall well above natural temperatures to levels that delay fall Chinook runs and cause significant stress to those fish,
- preventing the movement of gravel and other sediments,
- blocking fish migrations,
- various water quality problems
- worsening fish disease conditions

Removing the dams is likely to eliminate or significantly improve these problems. Fewer opportunities for effectively addressing these problems exist if the dams remain in place.

An overall conclusion of the Chinook Expert Panel was that “The Proposed Action appears to be a major step forward in conserving target fish populations compared with decades of vigorous disagreements, obvious fish barriers, and continued ecological degradation.”

I asked the Panel to respond to a question: what did they think would happen to Chinook salmon if the dams were not removed? They answered: “There is much certainty that if the four dams are not removed, the Klamath Chinook salmon will continue to decline.”

One way or another, PacifiCorp rate-payers are going to pay for efforts to reduce or eliminate these impacts. The Public Utilities Commissions in both Oregon and California concluded that the KHSA protects the rate payers from far higher costs that will be incurred if the dams are relicensed.

I keep hearing these dams being described as “perfectly good hydroelectric dams”, and that it would be insane to remove them. In reality, it would be foolish to keep them in place, because these dams are extremely detrimental to the river, its fisheries, and the people who rely upon the fish and want a healthy river. Much of the severe conflict this basin has experienced in recent decades can be traced back to the problems associated with these dams. Other primary sources of ecosystem degradation and conflict have been addressed in the KBRA. The best way to achieve ecological, economic, and social prosperity here is to implement the KHSA and the KBRA, and remove the dams.

**Comment Author**      Dunsmoor, Larry  
**Agency/Assoc.**      The Klamath Tribes  
**Submittal Date**      October 19, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_LT_1019_070-1	Master Response GEN-2 Some People Approve of Dam Removal, Others Oppose Dam Removal.	No

**Klamath Falls Hearing - 10-18-2011**

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STATEMENT PROVIDED BEFORE PUBLIC HEARING  
(Directly to Court Reporter)

MR. LARRY DUNSMOOR: My last name is Dunsmoor, D-u-n-s-m-o-o-r.

I am Larry Dunsmoor, water management liaison for  
the Klamath Tribes, and we will be submitting extensive  
written comments, so I will keep my comments very brief  
here.

Comment 1 - Approves of Dam Removal

But I will point out a few things. The dams in  
question do not provide clean power. They are very  
damaging to the river system.

For example, the dams, a 100 percent flow is  
diverted from the river. I don't think that's too good.

There are many impacts the system has on the river  
and on the fisheries. And by removing the dams we can  
completely eliminate some of those impacts and  
significantly improve others. There really is no viable  
alternative, I don't think.

I work for the Klamath Tribes. The Klamath Tribes  
lost their fishery, you know, over their protests. This  
is the best way to bring those fish back.

A lot of people have portrayed this as fish versus  
people. This is all about people, folks. This is about

people who care about fish, rely on fish. It is about commercial fishermen and tribes just as much as it is about agricultural folks.

Now let me point out that the folks that put these settlement agreements together worked extremely hard to balance the outcome. And in my strong opinion that balance was achieved. There is work yet to do. There will always be work to do.

Someone show me an alternative that's even remotely as effective as these agreements and we will all turn to that direction.

Thank you.

**Comment Author** Dunsmoor, Larry  
**Agency/Assoc.** The Klamath Tribes  
**Submittal Date** October 18, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1018_002-1	Master Response GHG-1 Green Power.  Any new power sources constructed in either state will work towards meeting this goal, which will increase the amount of renewable energy used as compared to today's mix of power.  Master Response GHG-2 Rate Increase.  Master Response GHG-3 Replacement Power.	No

IT\_MC\_1019\_009

## PUBLIC HEARING ON THE KLAMATH DAM

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CHILOQUIN, OREGON

OCTOBER 19, 2011

---o0o---

MR. LARRY DUNSMOOR: Good evening.

My name is Larry Dunsmoor, D-u-n-s-m-o-o-r. I work

with the Klamath Tribes. I've been working on the issues

associated with these dams for a few years.

Comment 1 - Approves of Dam Removal

So a partial list of the problems that we face with

these dams would include some of these things. The very

large daily swings in flow as a result of peaking

operations

One of the dams, Copco 2, essentially all of the

flow is diverted out of the river at certain times a year

There are problems with blooms of toxic algae in

the project reservoirs. The reservoirs have the effect of

homogenizing flow and thermal regimes of the downstream

and receiving waters.

The water is heated up in the late summer, early

fall, well above natural temperatures to levels that delay

fall Chinook runs and cause significant stress to those

fish.

The dams prevent the movement of gravel and other

sediments down the stream. They block fish migration.

There are various other water quality problems associated with these. They also worsen the conditions for fish diseases.

There's a pretty good list.

Removing the dams is likely to eliminate or significantly improve these problems. Fewer opportunities for effectively addressing these problems exist if the dams do remain in place.

As part of the process you folks have engaged in over the last few years, there were some expert panels, Chinook expert panel wrote the following overall conclusion, and this is a quote: Proposed action, that of dam removal, appears to be a major step forward in conserving target fish populations compared with decades of vigorous disagreements, obvious fish barriers and continued ecological degradation, end of quote

An interaction that we had with that expert panel, I asked them a question. It was this question: What do you think will happen to Chinook salmon if the dams are not removed? The answer I got: There is much certainty that if the four dams are not removed, the Klamath Chinook salmon will continue to decline.

On the point that Matt Walters spoke to, one way or another, PacifiCorp rate prayers are going to pay for

efforts to reduce or eliminate the impacts associated with these dams. They will either do it as a result of the re-licensing process or they will do it as a result of the removal process.

The Public Utilities Commissions for both Oregon and California have taken a very careful look at the cost associated with these, with these alternatives. And their conclusions have been very firm, that the Klamath Hydroelectric Settlement Agreement and the associated dam removal protects the rate payers from higher costs that will be incurred if the dams are re-licensed.

And, finally, I keep hearing that these dams are perfectly good hydroelectric dams and that it would be insane to remove them. Well, I would offer an alternative conclusion. From a policy standpoint it would be utterly foolish to keep these dams in place because they are extremely detrimental to the river, detrimental to its fisheries, and most particularly detrimental to the people who rely on the fish and want a healthy river.

Much of the severe conflicts we have experienced in the Basin over the past few decades in particular can be associated with these dams. Other primary sources of ecosystem degradation and conflict have been addressed in KBRA, the sister agreement to the hydro agreement.

The best way to achieve ecological, economic and  
social prosperity here is to implement the KHSA and the  
KBRA, and remove the dams.

Thanks.

**Comment Author**      Dunsmoor, Larry  
**Agency/Assoc.**      The Klamath Tribes  
**Submittal Date**      October 19, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1019_009-1	Master Response GEN-2 Some People Approve of Dam Removal, Others Oppose Dam Removal.	No

Klamath Settlement



EIS/EIR PROCESS

# Comment Form

IT\_MF\_1020\_030

Please mail your comments to:

**Ms. Elizabeth Vasquez**  
Bureau of Reclamation  
2800 Cottage Way  
Sacramento, CA 95825

OR

**Mr. Gordon Leppig**  
California Dept. of Fish and Game  
Northern Region,  
619 Second Street  
Eureka, CA 95501

**Email:**  
KlamathSD@usbr.gov

**Website:**  
KlamathRestoration.gov

**Fax:**  
(916) 978-5055

All comments on the Draft EIS/EIR must be received by November 21, 2011.

(Please print legibly)

**Name:** Jacquelyn Dyer

**Organization:** Hopi

**Title:**

**Address:** PO Box 153, Orleans, CA 95564

**Email:** jacquelyn-dyer@yahoo.com

**Comments:** Our ancestors taught us to be stewards of the land. They told us

to watch the water, and the animals and the earth to determine the health of our people and ways of life. A 60,000 salmon fish kill, toxic algae blooms, and water so toxic it cannot support native wildlife tells me that the Klamath River Dams create an unhealthy way of life. We are at a critical time where we must work to restore our natural surroundings so our children may be assured a healthy way of life. Real estate investments, as <sup>are</sup> all investments, risky. It is especially more risky when one buys property on a man made lake with a dam life of no more than 100 yrs. The few people benefiting from recreational pleasures should be reimbursed for their losses because the benefit of life is far greater than the cost of reimbursement. Undoing the Klamath is the only way to ensure life for us all. ~~in the future~~

Public Disclosure: It is not required that you submit personal information. If you decide to do so, please note it at any time. While you can ask us in your comment to withhold your personal identifying information from public review. Comment 1 - Approves of Dam Removal e at. o so.

**Comment Author** Dyer, Jacquelyn  
**Agency/Assoc.** Hoopa Valley Tribe  
**Submittal Date** October 20, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1020_030-1	Master Response GEN-2 Some People Approve of Dam Removal and Others Oppose Dam Removal.	No

IT\_MC\_1026\_059

KLAMATH DAM REMOVAL  
DRAFT EIS/EIR HEARING  
OCTOBER 26, 2011  
PUBLIC TESTIMONY  
ARCATA, CALIFORNIA

MR. FLETCHER: I'm here. I don't know if I wanted to be the first speaker. But my name is Troy Fletcher, F-l-e-t-c-h-e-r, and I'm an executive director and a member of the Yurok Tribe.

I would like to make a few comments in support of the secretarial determination of the preferred alternative to the SEIS. The Yurok Tribe has participated on a political, a technical, and in a legal level in the issues associated with the Klamath Agreements that have led to this process.

We have also participated, well before that, in a whole host of environmental and other fisheries and water issues that have impacted the Yurok Tribe in a horrifically negative way. The fish kill that happened in 2002 happened on the Yurok Reservation. It happened during our fishery, and we stopped fishing because of that. Not because we met our quota but because the fish were all piled up and dead on the banks of the river, still in the river. The Yurok Tribe worked with and led efforts to assess the damage and what that meant in terms of population and things of that nature.

The Tribe is also dependent upon the fishery for

our cultural purposes. It's a way of life. It's who we are. Our

Reservation is located on the lower 44 miles of the Klamath River. We support the Klamath Agreements.

We participated in the Klamath Agreements.

It turns out that sometimes the States of Oregon and California don't agree. Sometimes the County of Humboldt and maybe even Siskiyou County does not agree.

It turns out sometimes the environmental groups don't agree with each other. It's not a surprise that sometimes tribes don't agree with each other. And you're probably going to hear some opposition from other tribes, besides the Yurok, to this effort we support. We think others may oppose. We do -- and that's okay, and it's reasonable that people disagree. And with these other tribes, we share a lot of things in common and we team up and we have things that we work jointly together on, and

we make a lot of progress in different areas.

Comment 1 - ITAs

On this particular issue, though, there is one thing lacking in the analysis, and that is, there wasn't a good description about what the tribal harvests actually are, and what they actually are in terms of Klamath River fish. We actually catch Klamath fish; the Yurok Tribe does. We depend upon these fish. We're allocated 80 percent of the fall Chinook fishery. We catch Klamath fish, and so, it's important, as you go through this, that that be captured, that that be

captured.

When people from other tribes, who may claim that this is an affront to the trust responsibility, we will say that trust responsibility, in many aspects, is dependent upon the technical need to fish, the technical needs, in terms of what water is necessary, what habitat is necessary to support those fish. And those technical needs are comprised in the Klamath Agreements but are based upon what happens, in many aspects, for juvenile production and other things, for fish we actually catch. That needs to be captured in the appropriate section of the Agreement.

Comment 2 - Approves of Dam Removal

We'll stand ready to work with Congress and others to make this a reality, and we want to see dams come out. We know others do. We want to work with people, even if they have opposing views. We'll continue to do that.

We want to thank you for your time and for the road show that you're embarking on. Thank you.

**Comment Author** Fletcher, Troy  
**Agency/Assoc.** Yurok Tribe  
**Submittal Date** October 26, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1026_059-1	Master Response TTA-3 Federal Trust Responsibilities and Fisheries.  Master Response TTA-4 1988 Hoopa-Yurok Settlement Act.	No
IT_MC_1026_059-2	Master Response GEN-2 Some People Approve of Dam Removal and Others Oppose of Dam Removal.	No

IT\_LT\_1020\_029

Pat Fletcher (Lama)

Klamath Dam Removal Draft EIS/EIR Comments  
Shasta Indian Nation 10/20/2011 - yreka

Secretary of the Interior Ken Salazar,

Thank you for this opportunity to voice our  
Comments and concerns regarding the Klamath  
Dam Removal draft EIS/EIR.

← Comment 1 - Alternatives

We would like to start out our comments by  
stating that we endorse  
Alternative 4 - fish passage at 4 Dams and  
ask that a sensor fish study be conducted.  
We also ask for hatcheries to be placed on  
the Salmon and Scott Rivers to allow our  
people to once again be able to fish  
in our Native lands.

Comment 2 - Cultural Resources

In 1934 Quartz Valley Reservation was ~~established~~ <sup>established for Shasta and</sup> ~~for~~ <sup>upper Klamath</sup>  
In Section 3.12.3.2. <sup>river Shasta</sup>

Quartz Valley tribe, Quartz Valley tribe Histor  
they state and I quote "Most of the Quartz  
Valley Indian Reservation tribal members are  
descendants of people of Karuk ancestry,  
although a few tribal members are also of  
Shasta ancestry, therefore, their cultural  
traditions are similar to those described  
in the Karuk section of this report

The Quartz Valley Indian Reservation is a Federally recognized tribe representing people of "Upper Klamath (Karak) and Shasta ancestry." end quote.

First we would like to thank the QUR for finally acknowledging the fact that the vast majority of their membership is in fact of Karak descent. ~~the~~ the issue that we have with them is that they have falsely stated that the people of "Upper Klamath" are Karak, when in fact they are wholly Shasta. The Karak have never been identified as "Upper Klamath" that is the designation that belongs to the Shasta people living on the Klamath River. ~~Our~~ Our western boundary lies at Clear Creek on the Klamath River. This is according to George Gibbs, who traveled with the Treaty Commissioner Reddick McKee in 1851 and documented the journey in great detail in the "History of Siskiyou County" by Harry L. Wells. 1881 page 104 "McKees Indian treaties" He (McKee) next got all the Shastas together and assigned them for a Reservation the lower end of Scott Valley. This clearly shows that Treaty "R" was exclusively with the Shasta people,

← Comment 2 cont.

We the Shasta Indian Nation would like to publicly state that the QUR does not now, nor ever has, represented the "Shasta People". In the late 1950's and Early 1960's The Indian Claims Commission Docket #333 "The Shasta tribe" (led by Stanley Miller - Uncle to our former Chairman Larry Duke and also Great Uncle to our Secretary Ray Shelton) Sued the United States Government and was recognized as having a right to participate in the lawsuit. The Shasta aboriginal territory was documented, mapped, acknowledged and paid for during the ~~process~~ <sup>suit</sup>. This lawsuit was wholly and completely separate from the QUR which was then in the process of formation.

← Comment 3 - ITAs

in Section 3.12.3.3. Karuk ←  
Karuk ~~tribe~~ History

Fishing

The Klamath and Salmon River fishery and other resources supported the more than 100 ancestral Karuk villages ~~sites~~ along the Klamath and Salmon Rivers.

This is a fraudulent statement.

3) We are astounded that the Karuk tribe has the audacity to ~~commit perjury~~ <sup>make false statements</sup> in this process at the expense of the Shasta people for their own gain.

Comment 3 cont.

The Karok only went up the Salmon River less than 1 mile from the Klamath River

According to C. Hart Merriam in his "Konamehe Villages" from the C. Hart Merriam papers at U.C. Berkeley,

There are at least 17 documented Konamehe Village sites on the Salmon River.

1. Wa-ah-shoo-Kah-rah'-Kah was located at the mouth of Oak Bottom Creek, on the North side of the Salmon River. It was the lowest and most Northern Village of the tribe. Below this was Karok territory.

For the Karok tribe to imply that there were Karok Village sites above Oak Bottom is <sup>NOT TRUE</sup> outrageous.

Comment 4 - ITAs

3.12.31 The Klamath tribes. The Klamath tribes History. KBRA The KBRA has several programs that could result in impacts/effects to trust resources and other traditional resources used by the Klamath tribes. Specific KBRA programs potentially affecting trust resources and other traditional resources include

(4)

Comment 4 cont.

Klamath tribes <sup>temporary</sup> ~~interim~~ fishing site.

Establishment of the Klamath Tribes interim fishing site could result in impacts/effects to trust resources and other traditionally used resources. Actions associated with the Klamath Tribes interim fishing site include establishment of an interim fishing site for Klamath tribal members between Irongate Dam and Interstate 5. The improvement in Salmon fishery access generated by development of the Klamath Tribes interim fishing site would contribute to the positive effects of hydroelectric facility removal.

Establishment of the Klamath Tribes interim fishing site would generate beneficial effects to trust resources by providing tribal members with access to the Salmon fishery prior to hydroelectric facility removal.

## Comment 5 - Envr. Justice

We the Shasta people oppose implementation of the KBRA for this proposal to establish a Klamath tribes fishing site in Shasta aboriginal territory. The area in question is very sacred to the Shasta people and is also the site of the murder of Chief Bill on May 24<sup>th</sup> 1854.

This area is also home to documented Shasta Village sites and burial grounds.

We feel that this is a gross violation of our tribal sovereignty and a violation of our environmental justice.

## Comment 6 - Cultural Resource

### 3.13.2.2. Native American Graves Protection and Repatriation Act (NAGPRA)

Section 3 of NAGPRA applies to Indian Human remains and other cultural items found on federal lands and tribal lands, and addresses the treatment and disposition of those remains and items in consultation with relevant tribe(s).

Any Indian human remains or other cultural items found on federal land or tribal land affected by the proposed action and alternatives would be subject to the procedures under NAGPRA.

6

Comment 5 cont.

We request that the Siletz tribe receive the remains that have been found in the project area on our behalf and further request that the QUR be excluded from the NAGPRA process in this area as they have no cultural ties to the project site.

Identifying consulting parties pursuant to 36 CFR Section 800.3(f)

The public involvement process for NEPA has been extensive and sustained. It has included outreach and invitations to consult to other federal agencies, non governmental organizations, and the public. In addition DOI has separately notified the ACHP, California SHPO, Oregon SHPO, six federally recognized tribes, two Indian organizations and other interested parties.

CONSULT regarding the effects of the undertaking with tribes that may attach religious and cultural significance to affected historic properties. Tribal Consultation for Section 106 was initiated by letter dated 10-19-2010 - Tribal Consultation is ongoing

We request that our Contact info be updated

Shasta Indian Nation  
Ray Shelton - Secretary  
P.O. Box 528  
Etna, CA 96027

Thank you for the opportunity to  
submit a partial list of comments.  
A more detailed list will be submitted  
before the deadline.

8

**Comment Author** Fletcher, Pat  
**Agency/Assoc.** Shasta Indian Nation  
**Submittal Date** October 20, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_LT_1020_029-1	<p>Although the comment does not directly address the content and analysis of the EIS/EIR, a brief explanation of current salmonid monitoring activities is provided below in response the “sensor fish study” phrase provided in the comment as a courtesy.</p> <p>To ensure compliance with current production requirements, all fish released from IGD are counted. Annual hatchery reports are available from the Department of Fish and Game which document each year’s releases as well as adult returns. Additionally, all coho salmon and steelhead are marked prior to release. Due to the larger number of Chinook salmon produced and released; only a fraction (25%) is marked. As each fish returns to the hatchery, they are examined and records of hatchery produced and naturally produced fish by species, is collected.</p> <p>In addition to documenting achievement of hatchery production goals, marking hatchery fish is very important for other reasons. First, management of Chinook salmon and steelhead in the Klamath Basin is based on natural production, not hatchery production. As a federally and state listed threatened species, coho salmon recovery is also based on natural production. Being able to distinguish between the hatchery and natural production is crucial. Secondly, only hatchery produced steelhead (adipose fin clipped) are legally allowed to be harvested by sport anglers in order to allow unmarked, naturally produced fish to continue to spawn.</p> <p>Finally, the number of adult Chinook and coho salmon returning to spawn in areas outside the hatchery (e.g., Shasta River, Scott River, Bogus Creek, etc), is also determined. This information is combined with counting information from the hatchery and used to monitor the strength of fish populations, for fishery management purposes, and for coho salmon recovery.</p> <p>Master Response ALT-9 Hatcheries.</p> <p>The question as to whether hatcheries should be constructed on the Salmon and Scott Rivers is outside the scope of this analysis. However, anadromous salmonids currently have access to both the Salmon River and Scott River. Fishing opportunities on these two rivers are regulated by the California Fish and Game Commission and current regulations for the take of anadromous salmonids, excluding coho salmon, can be obtained from the California Department of Fish and Game web page at: <a href="http://dfg.ca.gov/">http://dfg.ca.gov/</a></p> <p>Your comment will be considered as part of the Secretarial Determination relative to the four dams on the Klamath River.</p>	No

**Comment Author** Fletcher, Pat  
**Agency/Assoc.** Shasta Indian Nation  
**Submittal Date** October 20, 2011

<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_LT_1020_029-2	Geographically speaking, it is probably more appropriate to substitute Upper Klamath with Middle Klamath. This change has been made in the document.	Yes
IT_LT_1020_029-3	Section 3.12.3.3 Karuk History - states that "The Klamath and Salmon river fishery and other resources supported more than 100 ancestral Karuk villages along the Klamath and Salmon Rivers." It is not implied that Karuk villages were located above Oak Bottom Creek. The Shasta Nation states in their comment that the Karuk only went up the Salmon River less than 1 mile from the Klamath River. This supports our statement that the river fisheries and other resources of the Salmon and Klamath Rivers supported Karuk villages.	No
IT_LT_1020_029-4	See Section 13.12.3.1 for information on affects of the KBRA programs potentially affecting trust resources and other traditional resources include The Klamath Tribes' Interim fishing site.	No
IT_LT_1020_029-5	Village sites and burial grounds are discussed in Section 3.13, Cultural and Historic Resources. The Shasta Nation were included in NHPA Section 106 process as interested parties.  Master Response CUL-1 Shasta Nation Participation.	No
IT_LT_1020_029-6	Draft EIS/EIR Section 3.13.2.2 states: "Any Indian human remains or other cultural items found on federal land or tribal land affected by the Proposed Action and alternatives would be subject to the procedures under NAGPRA." The NAGPRA procedures will be followed as applicable. NAGPRA applies to sites on federal lands or federally recognized Indian lands, identified by federally recognized tribes. State laws will apply to burial sites on non-federal lands.	No

**PUBLIC HEARING ON THE KLAMATH DAM**

---o0o---  
CHILOQUIN, OREGON  
OCTOBER 19, 2011  
---o0o---

MR. ALLEN FOREMAN: I am Allen Foreman,  
F-o-r-e-m-a-n. I'm a tribal member and a U.S. citizen.  
I want to commend this panel for what they came up  
with, and I think it is a very important process that has  
been done. There is a few in the room here that was with  
myself when we started this process about 11 years ago. I  
want to commend them for continuing on through.

This KBRA agreement, although I hadn't been

Comment 1 - KBRA

involved in the last few years, had and still has

something for all the parties that are involved. It is

not a Democrat or a Republican process. It's a local

solution to a local problem.

It's went through, went through a Republican

presidency and now we are in a Democratic presidency, so

it's a local solution that they support. And I want to

commend Secretary Salazar for continuing this process.

The tribal fisheries went out in the 1920s as a

Comment 2 - ITAs

result of these dams going in. Now it's an opportunity to

correct those wrongs that were done then.

And in the original agreement there were supposed

to have been fish passage put in. That's in writing. And

they never have been put in, so this is a way to bring the salmon back to the area.

Comment 3 - Approves of Dam Removal

And then these dam site, I support Alternative 2.

The dams must come out.

There didn't seem to be a lot of fuss when they took the Chiloquin Dam out of here, and that was the start of the process of dam removal. We want to continue it all the way down to the ocean.

Comment 4 -KHSA

And for those who are opposed, I see signs around the community here that say, got the big X through it, "Stop Dam Removal." Where were they when all this began?

All the parties in the community were invited, all the participants and stakeholders were invited. There were 24, maybe 25 different representative groups involved.

And where were they? They should have been involved from the beginning.

As I mentioned, not everyone got everything they wanted, but there was something in it for all the parties that they could agree to. And it's the best agreement that we can come up with.

And there was no one left out of this agreement from day one. If they didn't participate then there is no reason for them to be squawking about why they aren't

involved in it now. It's too late.

And those -- this is a huge, tremendous solution that has been hammered through, through hours and hours and years and years of negotiated process. And we need to support it, and we need to make sure that it goes through and that it does work.

And I want to commend the governors of Oregon, California, and the Secretary for their participation and support of this.

I thank you all.

**Comment Author** Foreman, Allen  
**Agency/Assoc.**  
**Submittal Date** October 19, 2011

<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1019_013-1	The Agreements were negotiated by many groups with diverse interests. Their intent is to resolve long-standing conflicts through compromise.	No
IT_MC_1019_013-2	Master Response GEN-1 Comment Included as Part of the Record.	No
IT_MC_1019_013-3	Master Response GEN-2 Some People Approve of Dam Removal and Others Oppose Dam Removal.	No
IT_MC_1019_013-4	<p>Master Response GEN-2 Some People Approve of Dam Removal and Other Disapprove of Dam Removal.</p> <p>Master Response GEN-16 Public Involvement.</p> <p>Master Response KHSA-1 Negotiations of KHSA and KBRA.</p> <p>Given the support of the many of the pivotal stakeholders and representation of a wide range of interests, the agreements are ripe for consideration by the Department of Interior and analysis under NEPA and CEQA. Additionally the Agreements, KBRA and KHSA, both have provisions to add both amendments and signatories at any time (KHSA 8.7 and 9.3 and KBRA 7.2 and Part VIII 38.). So if those entities which have not yet signed the Agreements can find common ground with the Settlement Parties, provisions could be made to modify the Agreements.</p> <p>Public involvement is a key part of the environmental review process and provides numerous opportunities for public input. All written comments received on the Draft EIS/EIR, and all verbal comments received during the public meetings on the Draft EIS/EIR (within the specified comment period), by law, become part of the record and must be presented in the Final EIS/EIR. The Lead Agencies must respond to comments that raise significant environmental issues related to the Draft EIS/EIR.</p>	No

KLAMATH DAM REMOVAL  
DRAFT EIS/EIR HEARING  
OCTOBER 27, 2011  
PUBLIC TESTIMONY  
KLAMATH, CALIFORNIA

MR. D. GENSAW: Iyee que. David Gensaw, Sr.,  
D-a-v-i-d G-e-n-s-a-w.

Since the arrival of the Europeans in the 1850's, our river flowed tremendously. It provided for us. It provided for the fish. But then came the gold rush, that they use their water cannons to tear up our village sites, our ceremonial sites, ravishing our lands, washing toxins, mercury, into our rivers, poisoning our fish.

Then there was the timber industry. This land here once had the largest timber in this world. And since that time, there's no more. The tributaries in our -- that ran into our rivers, that provided the cold water refugia for our fish and our people, they don't run into the rivers anymore. In the summertimes, the surface water is gone. It does provide some of that refugia that seeps into the ground and comes into the rivers that helps our fish.

The agriculture, you know, we're not -- ten years -- it's been ten years since the fish kill, and it's like ten days ago. We haven't heard anything like that that's passed down from our people, a fish kill of

that magnitude, because of the water that's taken from us, our people, our river, our fish.

Then we have climate change upon that. The dams, they affect the river. We once heard from our people that thousands of fish had come up the river. You could walk across the backs of them. Those are just stories that we've heard, but they are true stories.

In the '70s, they sent the federal marshals down the river, full riot gear, M-16's, to stop us from fishing. This is our way of life. This is our way of life. It affects our people, our ceremonies, our traditional ways of life. It is our lifeblood.

And what it's going to -- what is going to affect them, we have -- as Indian people, have gotten the blame for depleting our fish, but we are the ones that are stewards of this river, of this region, of this place.

Comment 1 -  
Approves Dam  
Removal

Those dams need to come out, all four of them.

We see the alternatives. We don't accept those

alternatives. All four of those dams need to come out,  
if our fish are to return. It's going to take that.

It's going to take those fish to be able to get up that  
river to the Basin, the Upper Basin, as they once did.

And we'll fight for that. And we'll continue to  
fight for that. It's our way of life. And we won't  
settle for any less. Thank you.

**Comment Author** Gensaw, David  
**Agency/Assoc.**  
**Submittal Date** October 27, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1027_045-1	Master Response GEN-2 Some People Approve of Dam Removal, Others Oppose Dam Removal.	No

IT\_MC\_1027\_050

KLAMATH DAM REMOVAL  
DRAFT EIS/EIR HEARING  
OCTOBER 27, 2011  
PUBLIC TESTIMONY  
KLAMATH, CALIFORNIA

MR. S. GENSAW: Iyee que. My name is Sammy Gensaw, and I come from the middle of the Requa. That's S-a-m-m-y G-e-n-s-a-w III.

And I am a part of the Klamath River Justice Coalition. I'm the vice president over at the Klamath River Early College of the Redwoods. But today I come here to represent the youth of the Reservation. Because --

In my 17 years, I have seen a lot, from the mouth of the river all the way up to headwaters at Chiloquin. And I have worked in the fields, so I know how hard it is. I have done a lot of things.

And this summer I have gotten the ability to teach my little brother how to row a canoe. A lot of you came in through that front. That canoe that you seen, that's -- I have a special bond with that canoe. It's something that I can help pass my culture and my traditions along. But we cannot do that without a thriving river to build upon. It is very important. It is a necessity.

And a lot of people around here depend on that

food. Something that people don't realize is we live in one of the 14 most poorest communities in California, and we're right up on the top of the list.

Also, we live in a food desert, which means there is nowhere around here that you can buy fresh produce, fresh meats. And a lot of people depend on that river to get salmon; and not only salmon but sturgeon and eels. And we can't candlefish no more. We depend on that every day more and more.

And that river depends on us to protect it. That's why we're here. We are not in this ecosystem; we're a part of it.

And everything that I have been taught, I have dedicated my life to becoming a good ancestor to pass that knowledge on, to make sure that everybody here has an opportunity to practice their culture, their beliefs, because that's who we are. That's what we are. And that's why we're here.

So, that's why I come here to this meeting tonight. I was going to bring some boys with me tonight, but, unfortunately, they couldn't make it, so I can show them, you know, "This is our home turf. You guys come down here and talk about something."

Comment 1- Approval of Dam Removal

This is a great day, and it's one step toward

something that will be a huge step in history. Once

these dams are removed, I believe our culture will

thrive. I believe that the fisheries will thrive. And I  
believe that there is a brighter tomorrow on the backside  
of those dams.

So, wohklew. Thank you. Thank you very much.

**Comment Author** Gensaw, Sammy  
**Agency/Assoc.**  
**Submittal Date** October 27, 2011

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_MC_1027_050-1	Master Response GEN-1 Comment Included as Part of Record.	No

IT\_LT\_1230\_097



# The Klamath

Tribe  
Council

December 30, 2011

Ms. Elizabeth Vasquez  
Bureau of Reclamation  
2800 Cottage Way  
Sacramento, CA 95825  
email: KlamathSD@usbr.gov

Re: **Klamath Tribes' Comments to Klamath Facilities Removal Draft Environmental Impact Statement/Environmental Impact Report**

Dear Ms. Vasquez:

← Comment 1 - Approves of Dam Removal

The Klamath Facilities Removal Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS) confirms that the KBRA and KHSAs are good for the Klamath Tribes and for the Klamath Basin as a whole. The Draft EIS report and underlying studies clearly demonstrate that removal of four privately owned dams 1) will advance restoration of our sacred Klamath Basin salmonid fisheries and 2) is in the public interest and specifically in the interest of the Klamath Tribes.

The Klamath Tribes concur that the public should be thoroughly informed and the Secretary should study these issues in an open and transparent manner and base his decision on sound science, engineering, and environmental analyses. The Tribes believe that the process being followed here will achieve that goal. Without doubt the Klamath Agreements and specifically the KHSAs represent the best alternative to the status quo of continued conflict. The Tribes reject the status quo in favor of a lasting and durable solution to the on-going crisis in the Klamath Basin. Accordingly the Tribes strongly urge the Secretary to decide that removing these four facilities is the best decision for Klamath River fisheries and communities by selecting and implementing either Alternative 2 or Alternative 3. The Draft EIS makes quite clear that the No Action/No Project Alternative is not a viable option!

No coalition of so many diverse parties and local interests has ever proposed actual solutions to these local problems in such a comprehensive manner. Such consensus among formerly warring parties seemed impossible as the Klamath Tribes endured the loss of their salmon.

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Klamath Tribes Comments to Draft EIS  
Page 2

steelhead, and c'waam fisheries, in 2001 when Klamath Project farmers were denied irrigation water, in 2002 during the fish kill in the Klamath River, and during the commercial fishing closures starting in 2006. The Klamath Agreements represent an incredible achievement given that troubled history.

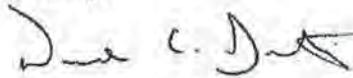
The Klamath Agreements put many decisions regarding ecosystem restoration back in the hands of those who live and work in the Basin without usurping the authority of State or local government. The States of California and Oregon, Indian tribes, counties, irrigators and conservation and fishing entities have worked tirelessly for many years to resolve their conflicts at the local level. They did so to stop wasteful litigation and to avoid imposition of a Washington, DC solution on local problems. The Klamath Agreements embrace local solutions to local problems using cooperation on issues like water security, irrigation power stability, and fisheries restoration and management.

The Agreements are a compromise by all parties. For the Klamath Tribes, after much analysis and deliberation, it is our considered opinion that the pros outweigh the cons and the Agreements create a win-win-win plan for the Tribes and the Klamath Basin.

Enclosed with this letter is the Klamath Tribes' Comment Table that provides specific comments to selected sections of the Draft EIS. In addition to the comments pertaining to Section 3.15 – Socioeconomics, the Tribes submit a report describing the economic impacts associated with the Tribes' reacquisition of the Mazama Forest as provided for under the KBRA. Entitled Economic Impact Analysis of the Proposed Forestry-Related Enterprises, this report quantifies the direct and indirect regional economic benefits of the enterprises proposed for development in association with the Mazama Forest acquisition. The accompanying Summary Handout succinctly presents the results of this analysis.

The Klamath Tribes appreciate the opportunity to provide comments on the Draft EIS Report and reiterate our support for Alternative 2 or Alternative 3. If you have any questions or need additional information please contact me or Larry Dunsmoor at the number listed. Without a doubt it will be a blessed day when the salmon and steelhead return to the waters of the Klamath Tribes and the c'waam populations are healthy once again.

Sincerely,

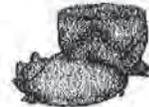


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Vice-Chairman Don Gentry  
Klamath Tribes

Enclosures: Klamath Tribes Comment Table  
Cardno ENTRIX Mazama Report

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Klamath Tribes

Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
II. Historical and Cultural Context			Comment 3 - Fish	Klamath Tribes	Larry Dunsmoor	Steelhead are absent from the early sections describing the historical use of fish. Butler et al (2010); title: The Use of Archeological Fish Remains to Establish Pre-development Salmonid Biogeography in the Upper Klamath Basin) found that 93% of the 41 <i>Oncorhynchus mykiss</i> specimens excavated from archeological sites above Upper Klamath Lake were anadromous. At the least, steelhead should be mentioned everywhere that salmon are mentioned.
A.Z.B Chinook Expert Panel	26		Comment 4 - Fish	Klamath Tribes	Larry Dunsmoor	In response to comment number 190, the Panel wrote the following: "There is much certainty that if the four dams are not removed, the Klamath Chinook salmon will continue to decline." Such a clear statement from the Expert Panel deserves inclusion in this and other narratives describing the conclusions by the Panel.
2.1.1.1.1			Comment 4 - Fish	Klamath Tribes	Larry Dunsmoor	Steelhead should be included more explicitly in this section. Butler et al (2010); title: The Use of Archeological Fish Remains to Establish Pre-development Salmonid Biogeography in the Upper Klamath Basin) found that 93% of the 41 <i>Oncorhynchus mykiss</i> specimens excavated from archeological sites above Upper Klamath Lake were anadromous.
2.1.1.3			Comment 5 - Alternatives	Klamath Tribes	Larry Dunsmoor	Lane and Lane (1981 - pgs 150-157) describe the promises made regarding the construction of fish passage facilities at Copco 1 Dam, and the subsequent failure by COPCO to live up to those promises. Some treatment of this topic should be included in this section.
2.1.1.3	16	1	Comment 6 - Fish	Klamath Tribes	Larry Dunsmoor	The first sentence begins by saying that "salmon" passage was blocked by Copco 1 Dam. All anadromous fish were blocked, not just salmon. Butler et al (2010); title: The Use of Archeological Fish Remains to Establish Pre-development Salmonid Biogeography in the Upper Klamath Basin) found that 93% of the 41 <i>Oncorhynchus mykiss</i> specimens excavated from archeological sites above Upper Klamath Lake were anadromous. Steelhead were a significant presence in the Upper Basin, and the inordinate focus on salmon alone diminishes the relative importance of steelhead. Here, and in most other locations where salmon are mentioned alone, either the phrase "salmon and steelhead" or "anadromous salmonids" should be used.
	19	1	Comment 7 - ITAs	NARF for Klamath Tribes	Dave Gover	The Termination discussion is admirably frank in its description of the impacts of replacing land with money. One facet that is missing, though, is the role of unscrupulous practices among non-Indians that relieved many tribal members or portions of their money. The Tribes suggest adding a sentence on p. 19 after the indented quotation, as follows:  "In addition, some non-Indian merchants, lawyers, and businesspeople took advantage of the situation to engage in unscrupulous practices that hastened the transfer of this wealth away from tribal members."
2.1.2.1	22	1st full paragraph	Comment 8 - Fish	Klamath Tribes	Larry Dunsmoor	The list of subsistence species in the first sentence should be reworded as: "... Chinook salmon (and possibly other species like coho salmon); anadromous (steelhead) and resident forms of redband rainbow trout; Lost River (c'waam), shortnose (koptu), Klamath largescale, and Klamath smallscale suckers; several chub species; Klamath speckled dace; several sculpin species; bull trout; and Pacific lamprey."  Also, the second sentence should read "...but salmon and steelhead stopped running...". This error, combined with the way steelhead was included in the list in the prior sentence, makes me wonder if the author was thinking that steelhead were not anadromous.

Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
2.1.2.1	22	2nd full paragraph		Klamath Tribes	Larry Dunsmoor	<b>Comment 9 - Fish</b> In the first sentence, strike the phrase "...employment in canneries..." In second sentence, reword as "...resident redband rainbow trout...". Redbands are a form of rainbow trout.
2.1.2.1.1	22	2		Klamath Tribes	Larry Dunsmoor	<b>Comment 10 - Fish</b> FYI, mullet is a local name for suckers.
3.1.1.1	49	3rd paragraph, 5th line		Klamath Tribes	Larry Dunsmoor	<b>Comment 11 - Fish</b> No cutthroat in the Upper Klamath Basin. <b>Comment 12 - KBRA</b>
3.1.2	57	bullets		Klamath Tribes	Larry Dunsmoor	Other elements of the KBRA should be included here. The Klamath Tribes will certainly be very active in planning and implementing many actions, especially in regard to KBRA Part III Fisheries Program. Klamath Tribes and ODFW are the co-leads in drafting (KBRA Section 11.2.1.A) and implementing (KBRA Section 11.2.1.C) Chinook reintroduction in Oregon. Klamath Tribes are among the Fish Managers, who will develop the Phase I and Phase II Fisheries Restoration Plans (KBRA Section 10). Klamath Tribes will be priority recipients of funding for Fisheries Program implementation (KBRA Section 32.3).
						<b>Comment 13 - Fish</b>
	58	3rd paragraph, 5th line	Table 3.1-3	Klamath Tribes	Larry Dunsmoor	Active reintroduction programs for Chinook are specified in KBRA section 11.3.1.A. Such a program will influence the likelihood of success, and also provide significant avenues for tribal participation in working to restore these runs.
3.1.2.1.1	59	2nd paragraph, lines 2-4		Klamath Tribes	Larry Dunsmoor	Bull trout will not move up the Klamath River to re-occupy UB habitats. Bull trout are present now only in the upper reaches of the Upper Klamath watershed. This species will benefit from the extensive river restoration work planned under the KBRA. Headwater populations that are presently isolated will have a greater opportunity to be reconnected, because improved habitats would allow migratory life stages to resume genetic interchange. Other benefits would also be important.
						<b>Comment 14 - Fish</b>
3.1.2.5.1	66	2nd paragraph		Klamath Tribes	Larry Dunsmoor	Bull trout are listed as threatened, not endangered. <b>Comment 15 - Fish</b>
Attachment 7	7-11		Table 2	Klamath Tribes	Larry Dunsmoor	Reference to canneries are over-stated. Canneries existed for a very short time early in the 20th century. Recommend deletion. <b>Comment 16 - Fish</b>
3.8.2.2	3			NARF for Klamath Tribes	Dave Gover	In response to comment number 190, the Panel wrote the following: "There is much certainty that if the four dams are not removed, the Klamath Chinook salmon will continue to decline." This clear statement from the Expert Panel deserves inclusion in Table 2 for both spring and fall Chinook. It should also be included in the narratives following the Table. <b>Comment 17 - Water Rights/Supply</b>
3.8.2.2	3			NARF for Klamath Tribes	Dave Gover	Page 3.8-3 § California - last paragraph change word "contained" to "codified" as follows: "California's water law is essentially codified in the California Code of Regulations, Title 23."
3.8.2.2	3			NARF for Klamath Tribes	Dave Gover	Page 3.8-3 § Klamath Basin Adjudication - A "time immemorial" water right is not a federally reserved right per se but one that originates under aboriginal title and subsequently recognized by federal law.
3.8.2.2	3			NARF for Klamath Tribes	Dave Gover	Page 3.8-3 § Klamath Basin Adjudication - Need to explain how the US v Adair proceedings affected the KBA. (i.e. Adair serving as the impetus for commencing the adjudication.)
						<b>Comment 18 - Water Rights/Supply</b>
						<b>Comment 19 - Water Rights/Supply</b>

INTERNAL WORKING DOCUMENT - NOT FOR DISTRIBUTION

Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
3.8.2.2	3			NARF for Klamath Tribes	Dave Gover	Page 3.8-3 § Klamath Basin Adjudication - Explain how 43 U.S.C. 666, commonly known as the McCarran Amendment, applies to the KBA by waiving the sovereign immunity of the United States where there is a suit designed to establish the rights to a river or other source of water, or the administration of such rights, and the United States appears to own or be in the process of acquiring rights to any such water including the rights of Indian Tribes because of the US serving as the Tribes' trustee. The effect is to permit State courts to adjudicate Federal water rights claims in a State forum.
3.8.2.2	3			NARF for Klamath Tribes	Dave Gover	Page 3.8-3 § Klamath Basin Adjudication - Explain how 43 U.S.C. 666, commonly known as the McCarran Amendment, applies to the KBA by waiving the sovereign immunity of the United States where there is a suit designed to establish the rights to a river or other source of water, or the administration of such rights, and the United States appears to own or be in the process of acquiring rights to any such water including the rights of Indian Tribes because of the US serving as the Tribes' trustee. The effect is to permit State courts to adjudicate Federal water rights claims in a State forum.
<b>Comment 21 - Water Rights/Supply</b>						
3.8	4	last line on page		Klamath Tribes	Larry Dunsmoor	The statement here that there is a general decreasing trend in precipitation amounts is contradicted by content in the report titled: Hydrology, Hydraulics, and Sediment Transport Studies for the Secretary's Determination on Klamath River Dam Removal and Basin Restoration. The latter report states that "...total precipitation is quite variable...and does not show a consistent trend since the 1950s".
<b>Comment 22 - Water Rights/Supply</b>						
3.8.4.3				NARF for Klamath Tribes	Dave Gover	The Report equates a "no effect" conclusion with a "no change from present conditions" conclusion. A conclusion of "no change" is in reality a conclusion that significant negative effects will continue to occur. Propose adding text to the penultimate sentence of the second paragraph: "The No Action/No Project Alternative does not include any action to change water supplies from existing conditions, which will virtually guarantee continued crises rotaling among the user groups, with a high likelihood of additional species listings under the ESA, significant negative impacts on local and regional economies, and on socio-cultural structures."
<b>Comment 23 - KBRA</b>						
0	0-1	Paragraph 2 under Surface Water Hydrology		Klamath Tribes	Larry Dunsmoor	KBRA would institute a different management paradigm, one that is less prescriptive, and therefore more flexible and responsive, than the present rigid management under the existing BOs. Under the KBRA, more or less water could be retained in UKL at different times of year, or more or less water could be sent down the Klamath River, than what is specified in any single alternative management regime. It is for this reason that 3 different KLAMSIM model runs were presented in Appendix E-5 of the KBRA. It is quite important that the analyses in the EIS be viewed from this perspective. In this paragraph, KBRA operations are described as "potential", but this is insufficient description of one of the true strengths of the KBRA management paradigm, which is adaptability to real time conditions, quite a different approach than rigid management under the existing BO's. Readers will interpret the KBRA simulation provided in this report as "the hydrologic outcome" of the KBRA, despite that fact that the Parties made special effort to describe the hydrologic outcomes of the KBRA as a range of potential outcomes depending on different approaches to management. Unless, of course, narrative is added to clarify this issue.
Exec Sum	41			NARF for Klamath Tribes	Dave Gover	Second paragraph under the heading "Baseline" starts with "One result if these...conditions" and then lists several results. Needs to be made plural.
Exec Sum	42			NARF for Klamath Tribes	Dave Gover	In discussing alternatives 4 and 5 it doesn't refer to their failure to meet all objectives.

Comment 20 - Water Rights/Supply

Comment 25 - Alternatives

Comment 24 - General/Other

Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
Exec Sum	43			NARF for Klamath Tribes	Dave Gover	In regard to alternatives 2 and 3, it refers to "Removing all Four Facilities". Shouldn't that say all four dams, since under 3 some facilities will be left in place? In the last paragraph under the heading "Alternatives 2 and 3" it refers to "This alternative". Shouldn't it be "These alternatives?"
Exec Sum	45-46		Comment 27 - Alternatives	NARF for Klamath Tribes	Dave Gover	Discusses that one alternative must be named in the Record of Decision (ROD) as the environmentally superior alternative. The direct statement is then made that CDFG has selected Alternative 3 (Partial Facilities Removal of Four Dams) as the environmentally superior alternative. Following this, there are more general statements to the effect that alternative 3 is the environmentally superior alternative. It is unclear if all of these statements are attributable to the CDFG or if DOI is joining in that opinion. This pattern is repeated in 5.6 at 5-106-107 which is presumably what is summarized in the Executive Summary. This issue is important, so the language should leave no doubt as to what both DOI and CDFG feel is the superior alternative.
3.12	1		Comment 28 - ITAs	NARF for Klamath Tribes	Dave Gover	States "Tribes of the Klamath Basin also have traditionally used resources they do not have the legally vested right to use/take." There should be a period after "resources" and the rest of the sentence should be deleted.
3.12	2		Comment 29 - ITAs	NARF for Klamath Tribes	Dave Gover	A later sentence refers to "Water quality" as essential to safeguard a fishery. It should also include "water quantity". The next sentence states that "Tribes of the Klamath Basin also have traditionally used resources they do not have the legally vested right to use/take." There should be a period after "resources" and the rest of the sentence should be deleted. The text seems to imply that the traditionally used resources are not trust resources. The Klamath Tribes do not agree.
3.12	3		Comment 30 - ITAs	NARF for Klamath Tribes	Dave Gover	The reference in the last two lines to "The Klamath, Modoc, and Yurok Tribes signed the treaty..." should just say "The Klamath Tribes signed the treaty..."
3.12	7		Comment 31 - ITAs	NARF for Klamath Tribes	Dave Gover	The paragraph starting with "In 1954" - in the third line, delete "effected by" and insert "and enacted". The first sentence of the last paragraph should read as follows: "Termination ended The Klamath Tribes status as a federally recognized Indian Tribe, dissolved the federal recognition of the tribal government, and nullified some federal fiduciary responsibilities to the tribal community." The second sentence should end with a period after "non-Indians", and the rest of the sentence should be deleted.
3.12	11		Comment 32 - ITAs	NARF for Klamath Tribes	Dave Gover	The second sentence of the last paragraph speaks of the rule of taking only what you need and concludes with "and this rule still guides the actions of many tribal members today." The word "many" should be deleted.
3.12	12		Comment 33 - ITAs	NARF for Klamath Tribes	Dave Gover	Refers to stewardship of resources in the first full paragraph and says "many" contemporary members perceive this as a right and responsibility. Delete "many". In the penultimate paragraph it refers to "lands ceded to the Klamath Tribes". Should this be lands ceded "by" the Tribes?  The italicized heading is much too weak saying that "Continued impoundment of water could affect tribal resources" This is much too weak. It definitely would continue having disastrous consequences.  The first two non-italicized sentences under Alternative 1 state that current Klamath River dam operations "have measurable consequences" on the Tribes' rights. This is too soft and should say instead "disastrous consequences".  See also Appendix A for proposed reline edits to the text.

Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
3.12	13			NARF for Klamath Tribes	Dave Gover	<p>In the second full paragraph, it states that the dams adversely affect the trust resources and other traditionally used resources. This is too weak as the effect is disastrous. Under the heading for Alternative 2, it states that "Removal of the Four Facilities could affect tribal trust resources." It should state that it would have a "highly beneficial effect" on those resources. Also, it refers in the paragraph to a long-term beneficial impact. Beneficial impacts will actually be felt quite soon and would continue for the long term. Under the heading "KRBA" it states that some programs under that agreement "could result in impacts/effects" to trust and other resources. This is a very non committal statement - why not say will have highly beneficial impacts?</p> <p>All of the italicized headings should state the programs would have highly beneficial impacts. (note all references to traditionally-used resources).</p> <p>Generally, the discussion of the benefits of Alternatives 2 and three and the KBRA are understated. There should be strong statements about the fulfillment of the trust responsibilities and the meeting of the purpose and need/project objectives.</p>
3.12	14		Comment 35 - ITAs	NARF for Klamath Tribes	Dave Gover	
3.12	13-15		Comment 36 - ITAs	NARF for Klamath Tribes	Dave Gover	
			Comment 37 - Envr. Justice			<p>In the second paragraph under "Installation of Dams" it refers to tribes being "adversely affected". This is very weak and should incorporate the findings or conclusions of the many documents relied upon by the Klamath Tribes Sociocultural/Socioeconomics Effects Analysis Technical Report, which document devastating impacts resulting from construction and operation of the dams.</p>
3.16	10			Klamath Tribes	Larry Dunsmoor	<p>In addition, while the text mentions lack of consultation and political doubt, this anemic description of events fails to capture the true essence of what happened. COPCO wanted to build a dam (Copco I). They promised that they would build fishways in response to tribal concerns. When the dam was partially constructed, COPCO decided not to build fishways. The Agent for the Klamath Tribes lodged many protests over this course of events, making it clear to the company that they were knowingly destroying the Tribes' salmon and steelhead fisheries. In the end, neither company nor the United States acted to prevent the complete extirpation of the Klamath Tribes anadromous fisheries, despite the United States' treaty obligations to prevent loss of these fisheries. Much of this history is documented in Lane and Lane (1981), which is not even cited in this section, but is cited in the Sociocultural/Socioeconomics effects analysis report.</p> <p>Development of the hydroelectric project proceeded, producing cheap power for the majority while the minority tribes endured the devastating cost of the hydro development. Such events are the very essence of environmental injustice, and they deserve a detailed accounting here. Rectifying this environmental injustice should be a central factor in the Secretary's decision regarding dam removal.</p>
3.16	11	40-42	Comment 38 - ITAs	Klamath Tribes	Larry Dunsmoor	<p>Delete the last sentence in this paragraph: "Furthermore, steelhead eat juvenile salmon...". This statement is indefensible and incorrect.</p>
3.16	10			NARF for Klamath Tribes	Dave Gover	<p>FN 1 Definition of "subsistence level" is too limited. Subsistence fishing includes more than fishing for a major food source; can also include uses like bartering, exchanging or supplemental income. Accordingly the Tribes think the definition is unnecessary and request that the purported definition of "subsistence" as found in fn. 1 be deleted.</p>

Comment 39 - ITAs

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Comment 42 - ITAs		Comment 40 - ITAs		Comment 45 - ITAs	
Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name
3.16.3.2	11			NARF for Klamath Tribes	Dave Gover
3.16	12, 15-16, 20		Comment 41 - Envr. Justice	NARF for Klamath Tribes	Dave Gover
3.16	20			NARF for Klamath Tribes	Dave Gover
3.16	22	15		Klamath Tribes	Larry Dunsmoor
3.16	22		Comment 43- ITAs	NARF for Klamath Tribes	Dave Gover
3.16.4.2	24		Comment 44 - ITAs	NARF for Klamath Tribes	Dave Gover
3.16.4.2	25	20-21		Klamath Tribes	Larry Dunsmoor
3.16	29-35		Comment 47 - Envr. Justice	NARF for Klamath Tribes	Dave Gover
3.16	32	20-38		Klamath Tribes	Larry Dunsmoor
3.3	22	11	Comment 49 - Fish	Klamath Tribes	Larry Dunsmoor
Comment 46 - ITAs					
Comment 48 - Envr. Justice					

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Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
3.3	26	7		Klamath Tribes	Larry Dunsmoor	Change "...this flow is provided by..." to "this flow is added to..."
3.3	27	19		Klamath Tribes	Larry Dunsmoor	"...as refuge during the drawdown." What is the drawdown? No explanation or context is given. I have no idea to what this refers.
3.3	49	25-27		Klamath Tribes	Larry Dunsmoor	Thermal outcomes, and the related stress levels for anadromous fish, were thoroughly presented in the Appendices to Dunsmoor and Huntington (2006).
3.3	63	62		Klamath Tribes	Larry Dunsmoor	In response to comment number 190, the Chinook Expert Panel wrote the following: "There is much certainty that if the four dams are not removed, the Klamath Chinook salmon will continue to decline." Such a clear statement from the Expert Panel deserves inclusion in this section describing effects of No Action on Chinook.
3.3	70	36-38		Klamath Tribes	Larry Dunsmoor	Upper Klamath Lake was naturally eutrophic, it is now hypereutrophic. The difference is large, and important.
<p><b>Comment 53 - Fish</b> →</p> <p><b>Comment 55 - Fish</b> →</p> <p><b>Comment 56 - Fish</b> →</p> <p><b>Comment 57 - Fish</b> →</p> <p><b>Comment 58 - Fish</b> →</p>						
3.3	94-95	62		Klamath Tribes	Larry Dunsmoor	Throughout section 3.3, the fact that Copco II dam diverts virtually all water out of the river channel is largely (completely?) absent. For example, on pg 71 in the discussion regarding reband trout, this issue is not even mentioned. Fish passage and habitat connectivity are discussed, but the complete elimination of about 2 miles of river habitat is not mentioned. This is a glaring omission of a profoundly negative impact of the Hydro Project on the Klamath River and its biota. This section, and many others, should be re-visited and effects conclusions regarding the reach below Copco II should be added.
3.3	128	9-13		Klamath Tribes	Larry Dunsmoor	In the narrative regarding the Chinook Expert Panel at the bottom of pg 94 and the top of pg 95, it is important to add something regarding their response to comment number 190. In their response, the Chinook Expert Panel wrote the following: "There is much certainty that if the four dams are not removed, the Klamath Chinook salmon will continue to decline." Such a clear statement from the Expert Panel should be included here.
3.3	129	11-12		Klamath Tribes	Larry Dunsmoor	These sentences offer tepid support for the notion that steelhead once co-occurred with resident redbands in the upper basin, in the process injecting a note of uncertainty on the topic. It needs to be clearly and firmly stated that these fish did occur in the upper basin. Considering the ethnographic information, Butler et al. (2010), photographic evidence, Hamilton (2005), Lane and Lane (1981), and other sources leaves no alternative to reaching a different conclusion (I note that none of these sources are relied upon here). But an even more powerful argument emerges from simply considering the life history characteristics of steelhead - there is no plausible ecological reason why these fish would not have been present. Absent such, the topic of whether they were here is not particularly relevant.
3.3	142	32-34		Klamath Tribes	Larry Dunsmoor	Italicized sentence should be changed to the following: <i>Dam removal would restore connectivity among the lower basin, the Hydroelectric reach and its tributaries, and the upper basin, and would rehabilitate and increase availability of riverine habitat within the Hydroelectric Reach.</i>
3.3	143	31 and 34		Klamath Tribes	Larry Dunsmoor	This sentence is incorrect, in that it links groundwater pumping restrictions to 6% of the flow of the Klamath River above Copco Dam. Section 15.2.4.A.1 of the KBRA states: "For the purpose of this provision, Adverse Impact shall mean: a 6% reduction in the flow of any of the following springs." Following this statement is a long list of springs. It is not the mainstem flow in view here, it is a limitation on the extent to which flow of individual springs or spring complexes can be reduced.
<p><b>Comment 52 - Fish</b> →</p> <p><b>Comment 51 - Fish</b> →</p> <p><b>Comment 54 - Fish</b> →</p> <p><b>Comment 60 - Fish</b> →</p> <p><b>Comment 59 - Fish</b> →</p>						
3.3	143	31 and 34		Klamath Tribes	Larry Dunsmoor	These lines refer to KBRA Section 16.2.2.E.1 (pg 109). On line 31 change "...mechanisms would..." to "...mechanisms may...". On line 34, delete the phrase "...and forest thinning", as it is not included in the list in the KBRA.

Comment 62 - Water Quality

Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
3.3	145	first paragraph		Klamath Tribes	Larry Dunsmoor	Throughout the first paragraph change "Klamath River Tribes" to "Klamath Tribes". The interim fishing site is specific to the Klamath Tribes.
3.2	48	14		Klamath Tribes	Larry Dunsmoor	The 83,770 acre feet capacity of the Agency Lake and Barnes Ranches Project is the potential volume, attainable only if a new dike is constructed on the north end to prevent flooding of neighboring land. As used now, the operational volumes are substantially less - contact BOR for the correct volume.
3.2	50-52			Klamath Tribes	Larry Dunsmoor	Thermal effects of existing conditions are addressed here only in terms of magnitude. However, variability is important as well, and it is not addressed at all. The reservoirs homogenize the thermal regime below the Hydro Reach - some of the consequences are addressed in Dunsmoor and Huntington (2006).
3.2				Klamath Tribes	Larry Dunsmoor	Throughout this section, for every alternative, the fact that virtually 100% of the river's flow is diverted at Copco II is not addressed. Each bolded conclusion of effects pertinent to the Hydroelectric Reach should explicitly address this issue. This is a profoundly negative impact of the Hydroelectric Project, and it must be carefully evaluated in this EIS.
4.3.1	14		Table 4-3	Klamath Tribes	Larry Dunsmoor	The tribal section omits the following plan: "Reintroduction of Anadromous Fish to the Upper Klamath Basin: an Evaluation and Conceptual Plan. This report was authored by Huntington and others in 2006, on behalf of the Klamath Tribes, the Yurok Tribes, and the Karuk Tribe, and was submitted to FERC as part of the Klamath Tribes recommendations under section 10(a) of the Federal Power Act."
4.3.1	16		Table 4-3	Klamath Tribes	Larry Dunsmoor	The States section omits the following plan: "Klamath Basin Anadromous Fish Reintroduction Plan. This plan amended the Klamath Basin Fish Management Plan, and was passed into law in 2008. I believe the citation is OAR 635-500-3890 through OAR 635-500-3910. OAR stands for Oregon Administrative Rules."
4.4.1	29		Table 4-5	Klamath Tribes	Larry Dunsmoor	Here and elsewhere the cumulative effects of alternatives on the dewatered reach below Copco II Dam must be explicitly addressed. It is not appropriate to omit one of the most egregious impacts of the Hydro Project.
4.4.1.1	40			Klamath Tribes	Larry Dunsmoor	It is true that facilities removal would cause the bypassed reach below JC Boyle Dam to become warmer. The only reason it is cold now is because the vast majority of the river's flow is diverted out of the river, creating a completely artificial, un-natural river reach. The rebands present exhibit poor growth, and would benefit from a more natural thermal regime (review the EP Act findings). Alternative-induced shifts in the thermal regime should be judged relative to a natural thermal regime. Increased temperatures in the bypassed reach resulting from dam removal should be viewed as beneficial, not detrimental, as it is a shift back towards the natural condition.
4.4.1.1	42	10-12		Klamath Tribes	Larry Dunsmoor	This sentence mentions that water temperatures are less variable below Iron Gate Dam. It fails to either cite or seriously engage Dunsmoor and Huntington (2006), which thoroughly quantifies and contrasts the thermal homogeneity of the existing condition compared to the thermal heterogeneity resulting from facilities removal. Throughout the EIS, thermal magnitude is focused on, and the importance of restoring natural patterns of thermal variability are given short shrift. As a result, the thermal benefits of dam removal are under-estimated. Increased spring-time temperatures below Iron Gate a) are more natural for the system; b) may contribute to faster growth of outmigrants; c) has significant life-history linkages to the decreased late-summer and fall temperatures that will allow earlier spawning under more optimal conditions, which in turn would lead to earlier emergence and likely earlier out-migration. It is too simplistic and likely wrong to conclude that increased spring-time temperatures resulting from dam removal are uniformly negative. They may turn out to be neutral or even beneficial.

Comment 69 - Water Quality

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Section Number	Page Number	Line number	Figure or Table Number	Agency or Organization	Comment or Name	Comment
4.4.1.1	42	last paragraph		Klamath Tribes	Larry Dunsmoor	Here there is discussion about how the proposed action would affect water temperature between Copco I reservoir and Iron Gate reservoir; temperatures would increase in May and June but decrease in August and October. Much of the reach considered here is virtually dry (maybe has 15 cfs) because all of the water is diverted at Copco II. It makes no sense to discuss thermal changes in the manner done here when there is no water. For this reach, dam removal is uniformly beneficial, regardless of water temperature, because there will be water. This issue has not been addressed properly, here or elsewhere.

← Comment 70 - Water Quality



## **Economic Impacts of Proposed Forestry- Related Enterprises**

August, 2011

Prepared For  
Klamath Tribes

# Economic Impact Analysis of the Proposed Forestry-Related Enterprises

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August 2011

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**Economic Impacts of Proposed Forestry Related Enterprises**


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## Executive Summary

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As part of their proposed water rights settlement, the Klamath Tribes (Tribes) have proposed developing or purchasing several forestry-related enterprises. These include the purchase of the Mazama Tree Farm and development of four new enterprises: a biomass power plant, a wood shavings plant, a wood chipping plant, and a forestry services organization. These enterprises would support and enhance the local economy by purchasing local forest products and expanding value-added activities that support jobs and income in the region.

The Beck Group, a consultant to the Tribes, has conducted a financial and technical feasibility analysis of these enterprises. This analysis included a detailed assessment of the required capital and annual expenditures, including expenditures for equipment, labor and materials, of each enterprise to estimate the return on investment. In addition to analyses of financial feasibility, the Tribes require an analysis of the economic impact of the proposed enterprises to the region. This analysis uses the findings from The Beck Group to estimate the direct and indirect regional economic benefits in terms of economic activity supported by the proposed enterprises.

The purpose of this analysis is to estimate the total economic activity generated and supported by the proposed enterprises in terms of increased local jobs and value added (which includes labor income, taxes paid, and profits). Together these proposed forestry and forestry-product processing activities would directly and indirectly increase economic activity throughout the local area. The report identifies the direct impacts of the enterprises and then estimates the indirect and induced effects at other local businesses.

The scope of the analysis is to estimate the impacts of the five forestry-related enterprises (Mazama tree farm, biomass power plant, wood shavings plant, wood chipping plant, and a forestry organization) proposed by the Tribes, including three alternatives for the proposed biomass power plant. Impacts are estimated for the short-term construction and capital investment stage of enterprise development as well as the long-term, annual operations stage. The geographic region analyzed includes Klamath County (where the facilities would be located) as well as neighboring Deschutes and Jackson Counties that have larger populations and towns that are anticipated to provide goods and services to the enterprises and their employees.

### Methodology

Total economic impacts differ during the short-term construction/enterprise development phase and the long-term operation phase, and are estimated separately. In contrast to short-term construction impacts, the operations impacts of each forestry-related enterprise would continue on an annual basis for the life of the enterprise. The types of economic impacts from the proposed enterprises that are estimated in this analysis are outlined below:

#### Construction

- On-Site Construction Jobs and Income (Direct)
- Supplier Jobs and Income (Indirect)

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### Economic Impacts of Proposed Forestry Related Enterprises

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- Retail/Service Jobs and Income (Induced Impact from increased spending of labor income)

#### Operation

- On-Site Jobs and Income (Direct Impact)
- Supplier Jobs and Income (Indirect Impact)
- Retail/Service Jobs and Income (Induced Impact from increased spending of labor income)

To estimate these economic impacts, Cardno ENTRIX conducted the following three-step analysis:

1. Gather Data on Enterprises: In this task, data from The Beck Group on the capital and operations expenditure by each enterprise was evaluated to identify the change in demand for labor and goods and services in the local economy due to each enterprise.
2. Develop Economic Impact Model: This analysis developed an economic model of Deschutes, Klamath, and Jackson Counties using IMPLAN software and data.
3. Estimate Total Economic Impacts: Data from the Beck Group on construction and operation expenditures for each enterprise was used to estimate the 'direct,' on-site jobs and value added. Once direct impacts were determined, the regional economic impact model of the three-county local economy was used to estimate the total jobs and income impact, including the ripple effects throughout other economic sectors as money is re-circulated in the economy.

### Economic Impacts

**Table ES-1** summarizes estimated total economic impacts (direct, indirect, and induced) for each individual enterprise for construction and operations phases, as well as the total impact of all enterprises developed simultaneously.<sup>1</sup> In total, assuming all enterprises are constructed, it is estimated that approximately 230 to 270 jobs in the region may be supported during the initial start-up and construction phase. During operations, we estimate that all enterprises would support 195 to 210 full and part-time jobs, and \$15.7 to \$16.7 million in value added. Over the next 20 years, spanning both the construction and operations phases in all five projects, the total value added (including income, taxes, benefits) that the enterprises would support in the region is estimated at \$245.3 to \$263.2 million, depending on which biomass power plant is constructed.

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<sup>1</sup> Total economic impacts of each individual enterprise were estimated assuming that no other enterprises were developed. However, the estimated total economic impact of all enterprises (presented in the bottom row of Table ES-1) assumes that all enterprises are developed simultaneously. As one enterprise, the forestry organization, would provide inputs (an indirect impact) to the other enterprises, the sum of the total effects of all four enterprises presented in Table ES-1 is smaller than the sum of each individual enterprise (i.e. some of the indirect effects of the biomass power plant, wood shavings plant, and wood chipping plant are already included in the forestry organization effects).

**Economic Impacts of Proposed Forestry Related Enterprises**

**Table ES-1 Estimated Total Economic Impacts (Direct, Indirect, and Induced) of Proposed Forestry – Related Enterprises: Klamath, Deschutes, and Jackson Counties**

Enterprise	Construction Phase: One-Time		Operations Phase: Annual, Ongoing		Present Value: 2011-2030
	Employment	Value Added (Millions \$)	Employment	Value Added (Millions \$)	Value Added (Millions \$)
<b>Power Plant</b>					
<i>Stand Alone</i>	200	\$10.0	110	\$10.2	\$161.2
<i>Giiwas Cogen</i>	230	\$11.5	110	\$10.5	\$167.8
<i>Gilchrist Cogen</i>	240	\$12.1	130	\$11.4	\$181.3
Forestry Organization	10	\$0.8	30	\$2.6	\$40.2
Wood Shavings Plant	20	\$0.9	20	\$1.2	\$18.6
Wood Chipping Plant	Insignificant	\$0.1	40	\$4.1	\$61.5
Mazama Tree Farm	N/A	N/A	20	\$0.8	\$12.3
<b>Total (5 Enterprises)</b>	230 – 270	\$11.9 - \$13.9	195-210	\$15.7 - \$16.7	\$245.3 - \$263.2

Note: The "Total" range is due to the different impacts estimated for the three variations of the power plant. Additionally, the "Total" does not sum. The forestry organization captures a portion of the "indirect" effects of the other enterprises, so summing all enterprises would result in double-counting of some effects.

In each of its three proposed alternatives, the biomass power plant supports the largest portion of the employment and value added for both the construction and the operations phases. In the construction phase, approximately 200 to 240 full and part-time jobs and \$10.0 million to \$12.1 million in value added may be supported in the 3-county region to provide labor and materials to construct the power plant. During operations, the power plant is expected to support approximately 10 to 15 employees at the plant, and an additional 90 to 120 in other sectors through purchase of biomass fuel, ongoing repair and maintenance services, truck transportation, and other supplies. Total value added that would be annually supported at the power plant is estimated at \$10.2 to \$11.4 million annually.

The other three new enterprises, the forestry organization, the wood shavings plant, and the wood chipping plant have a similar magnitude of economic impacts. Each supports approximately 0 to 20 jobs and \$0.1 to \$0.9 million in value added in the initial construction phase, and between 20 to 40 jobs and \$1.2 million to \$4.1 million in value added during the operations phase. The Mazama Tree farm, which is a purchase of an existing enterprise by the Tribes, is expected to result in slightly less additional employment and income of just under 20 jobs and approximately \$0.8 in income annually (note that this is employment and income *in excess* of current levels estimated to be supported at the tree farm).

Much of the total economic impact show in **Table ES-1** is due to the multiplier effect of money spent by the proposed enterprises re-circulating in the local economy. **Figure ES-1** and **Table ES-2** highlight the magnitude of the employment multiplier effect of each enterprise. The multiplier is equivalent to the ratio of total economic impact to direct economic impact. For example, the Gilchrist Cogeneration plant would directly employ an estimated 15 people at the facility, but would support an additional 110 people at other business, resulting in a total employment of approximately 125. This equates to a multiplier of 8.4; for every job at the Gilchrist Cogeneration facility, there are an estimated 8.4 total jobs created, or 7.4 *additional* jobs created at other local businesses (5.1 indirect jobs and 2.3 induced jobs). This high

### Economic Impacts of Proposed Forestry Related Enterprises

multiplier indicates the extent that the biomass facility relies on goods and services provided by the local economy, in particular wood fuel, trucking, maintenance, permitting, and utilities. The other biomass power plant alternatives have similarly high multipliers, while the wood chipping plant has an even higher multiplier at 14.9 (due to relatively few employees at the facility but a significant number of jobs being created in the forestry sector to supply the raw wood product material to the facility). The other enterprises have lower multipliers ranging from 1.3 for the Mazama Tree Farm to 2.2 for the wood shavings plant.

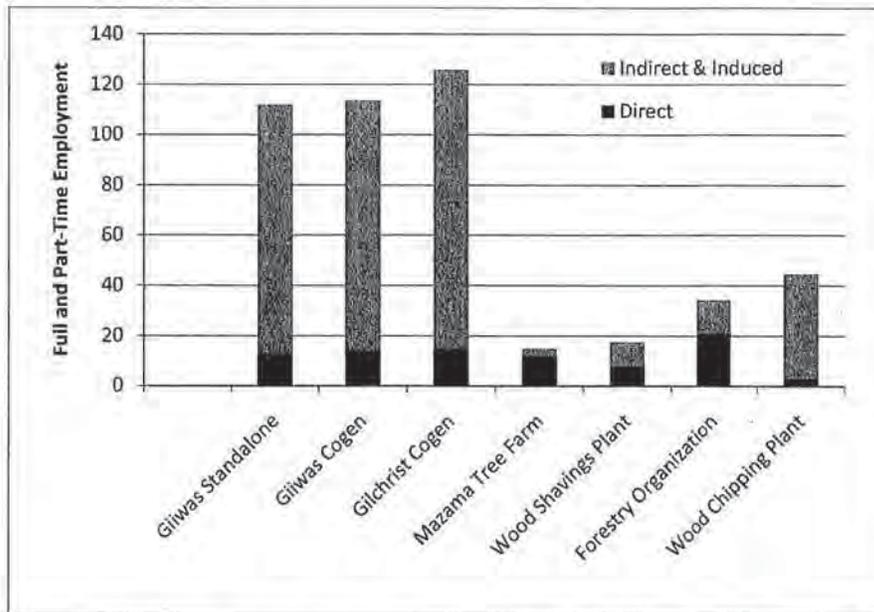


Figure ES-1 Estimated Direct, Indirect, and Induced Annual Employment Comparison by Enterprise.

Table ES-2 Estimated Annual Multiplier Effects, Operations Phase

Proposed Enterprise	Direct Employment Multiplier (A)	Indirect Employment Multiplier (B)	Induced Employment Multiplier (C)	Total Employment Multiplier (A+B+C)
Biomass Power Plant				
Giiwas Stand alone	1.0	5.2	2.4	8.6
Giiwas Cogen	1.0	4.8	2.3	8.1
Gilchrist Cogen	1.0	5.1	2.3	8.4
Forestry Organization	1.0	0.0	0.6	1.6
Wood Shavings Plant	1.0	0.7	0.5	2.2
Wood Chipping Plant	1.0	9.9	3.9	14.9
Mazama Tree Farm	1.0	0.0	0.5	1.3

As indicated in Table ES-2, developing the proposed enterprises will not only directly support employment and income at the facilities, but will also support jobs and income at a myriad of

**Economic Impacts of Proposed Forestry Related Enterprises**

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other local businesses, including businesses in the construction, transportation, retail, trade, services, utilities, and forestry sectors.

## Chapter 1

# Introduction

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As part of their proposed water rights settlement, the Klamath Tribes (Tribes) have proposed developing or purchasing several forestry-related enterprises. These include the purchase of the Mazama Tree Farm and development of four new enterprises: a biomass power plant, a wood shavings plant, a wood chipping plant, and a forestry services organization. These enterprises would support and enhance the local economy by purchasing local forest products and expanding value-added activities that support jobs and income in the region.

The Beck Group, a consultant to the Tribes, has conducted a financial and technical feasibility analysis of these enterprises. This analysis included a detailed assessment of the required capital and annual expenditures, including expenditures for equipment, labor and materials, of each enterprise to estimate the return on investment. In addition to analyses of financial feasibility, the Tribes require an analysis of the economic impact of the proposed enterprises to the region. This analysis uses the findings from The Beck Group to estimate the direct and indirect regional economic benefits in terms of economic activity supported by the proposed enterprises.

### 1.1 Purpose and Scope of Analysis

The purpose of this analysis is to estimate the total economic activity generated and supported by the proposed enterprises in terms of increased local jobs and value added (which includes income, taxes paid, and profits). Together these proposed forestry and forestry-product processing activities would directly and indirectly increase economic activity throughout the local area. The purpose of the report is to identify the direct impacts of the enterprises and then to estimate the indirect and induced effects at other local businesses. These indirect and induced benefits result from increased production at the proposed enterprises rippling through the local economy, increasing demand for production inputs from other local businesses and increasing income which is then re-spent in the local economy.

The scope of the analysis is to estimate the impacts of the five forestry-related enterprises (Mazama tree farm, biomass power plant, wood shavings plant, wood chipping plant, and a forestry organization) proposed by the Tribes, including three alternatives for the proposed biomass power plant. Impacts are estimated for the short-term construction and capital investment stage of enterprise development as well as the long-term, annual operations stage.

The geographic region analyzed includes Klamath County (where the facilities would be located) as well as neighboring Deschutes and Jackson Counties that have larger populations and towns that are anticipated to provide goods and services to the enterprises and their employees.

### 1.2 Organization

This report contains two additional chapters and an Appendix. Chapter 2 provides an overview of the methodology and data sources used in the analysis. Chapter 3 presents economic impact estimates. Appendix A provides additional detail on the data for each enterprise used in the analysis.

## Chapter 2

# **Methodology and Data Sources**

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The proposed forestry-related enterprises would result in construction and operation of energy production and manufacturing plants, development of a forestry organization, and enhanced management of a tree farm. These enterprises would directly support employment and income in the construction, manufacturing, and timber industries in Klamath, Deschutes, and Jackson Counties. In addition to these direct impacts, total impacts would include indirect and induced impacts as directly affected industries (and their employees) re-spend money in the local economy in the wholesale, retail, service, and other sectors. To the extent that this money is re-spent at local businesses, the money will circulate in the economy and stimulate additional local economic activity known as the multiplier effect.

Total economic impacts differ during the short-term construction/enterprise development phase and the long-term operation phase, and are estimated separately. In contrast to short-term construction impacts, the operations impacts of each forestry-related enterprise would continue on an annual basis for the life of the enterprise.

The types of economic impacts from the proposed enterprises that are estimated in this analysis are outlined below:

### **Construction**

- On-Site Construction Jobs and Income (Direct)
- Supplier Jobs and Income (Indirect)
- Retail/Service Jobs and Income (Induced Impact from increased spending of labor income)

### **Operation**

- On-Site Jobs and Income (Direct Impact)
- Supplier Jobs and Income (Indirect Impact)
- Retail/Service Jobs and Income (Induced Impact from increased spending of labor income)

To estimate these economic, Cardno ENTRIX conducted a three-step analysis. An overview of the methodology and data used is provided below, and then is discussed in more detail in the remainder of the chapter.

4. Gather Data on Enterprises: In this task, data from The Beck Group on the capital and operations expenditure by each enterprise was evaluated to identify the change in demand for labor and goods and services in the local economy due to each enterprise.
5. Develop Economic Impact Model: This analysis developed an economic model of Deschutes, Klamath, and Jackson Counties using IMPLAN software and data.

### Economic Impacts of Proposed Forestry Related Enterprises

6. **Estimate Total Economic Impacts:** Data from the Beck Group on construction and operation expenditures for each enterprise was used to estimate the 'direct,' on-site jobs and value added. Once direct impacts were determined, the regional economic impact model of the three-county local economy was used to estimate the total jobs and income impact, including the ripple effects throughout other economic sectors as money is re-circulated in the economy.

## 2.1 Data

The Beck Group provided Cardno ENTRIX with data on the four new enterprises being considered by the Tribes: biomass power production, forestry organization, wood shavings plant, and wood chipping plant. The Beck Group provided information on three proposed variations of the biomass power production plant: Giiwas stand alone plant, Giiwas cogeneration plant, and Gilchrist cogeneration plant. Information on the increased labor and income associated with operation of the Mazama Tree Farm due to Tribal ownership (in excess of economic activity currently supported by existing ownership) was gathered from the Klamath Tribes. It is expected that increased economic activity at the Mazama Tree Farm would be primarily associated with increased labor associated with restoration and more active forestry management, and would result in little additional demand for other goods and services from the local area. **Table 2-1** summarizes the capital investment and annual expenditures for each proposed enterprise. Note that this analysis *did not include value added from profits* of the proposed enterprises as it was not available for all enterprises. Value added from a positive financial return on investment would increase the direct value added and would also increase the multiplier effect of the proposed enterprises.

**Table 2-1 Estimated Capital and Operations Expenditures by Proposed Enterprise (Millions \$)**

Enterprise	Expenditure Type	Construction / Capital Investment (\$)	Annual Operation and Maintenance (\$/Year)
Giiwas Alone Biomass Plant	Enterprise Direct Labor Income	N/A	\$1.2
	Purchase of Goods and Services	\$51.2	\$9.4
Giiwas Cogeneration Biomass Plant	Enterprise Direct Labor Income	N/A	\$1.3
	Purchase of Goods and Services	\$61.8	\$9.5
Gilchrist Cogeneration Biomass Plant	Enterprise Direct Labor Income	N/A	\$1.2
	Purchase of Goods and Services	\$62.4	\$12.1
Forestry Organization	Enterprise Direct Labor Income	N/A	\$1.8
	Purchase of Goods and Services	\$4.2	\$1.1
Wood Shavings Plant	Enterprise Direct Labor Income	N/A	\$0.3
	Purchase of Goods and Services	\$3.3	\$1.2
Wood Chipping Plant	Enterprise Direct Labor Income	N/A	\$0.2
	Purchase of Goods and Services	\$1.7	\$5.2
Mazama Tree Farm	Enterprise Direct Labor Income	N/A	\$0.7
	Purchase of Goods and Services	N/A	N/A

Source: Personal communication with The Beck Group and representatives of the Klamath Tribes.

## Economic Impacts of Proposed Forestry Related Enterprises

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### **2.2 Develop Economic Impact Model**

Following a brief overview of the economic impact analysis, this section describes the specific models used to estimate economic impacts of the proposed forestry-related enterprises.

#### **2.2.1 Overview of Economic Impact Analysis**

To understand how an economy is affected by a business or industry, such as biomass power production, it is necessary to understand how different sectors or industries in the economy are linked to each other. For example, in the biomass power production sector, the power plant buys wood fuel from the forestry industry, which in turn then buys forestry equipment from equipment dealers, which in turn purchases from a range of other industries, resulting in indirect impacts. Employees of each of these industries then spend their income on goods and services in a variety of other sectors, resulting in induced impacts.<sup>2</sup>

Typically, most economic sectors need to make purchases of goods and materials from outside of the local economy. Purchases made from outside the study area are called “imports.” Money spent on imports is said to be a “leakage” from the local economy, and is expected to be large for the initial start-up phase of the proposed enterprises as much of the required capital equipment will be manufactured outside of the study area (though there will be impacts in the retail sector as much of the equipment will likely be purchased from local equipment dealers). Likewise, businesses typically do not sell all of their production to businesses in the local area, but sell some or all of their production to businesses outside the local area. Products sold outside the local area are “exports,” and money received for exports brings “new” money into the area and increases the size of the local economy through a multiplier effect.

The size of the multiplier effect, or the extent to which “new” money generated by exports from the forestry-related enterprises is able to expand the local economy is greatly dependent on how much of the money is spent and re-spent in the local economy. A proportion of money received by the industry is spent to procure local supplies from linked industries, and then these local suppliers re-spend that money. To the extent that there are plenty of other local businesses on which the local suppliers can depend, less of this money leaves the local economy to buy imports. If there are few local businesses from which needed purchases can be made, much of the money will leave, or “leak” from, the local economy, and the multiplier effect will be smaller. In other words, the size of the multiplier effect depends on how local businesses are linked together and how much leakage there is to outside areas for imports. (However, leakages from the local level represent economic activity generated in these outside areas providing the imported goods and services). If the economy has numerous sectors that are linked, multipliers will be higher than if there are few linkages between sectors.

Households are linked to all economic sectors as they provide the required labor and management. In turn, changes that affect the incomes of the household sector typically have

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<sup>2</sup> Direct effects are effects on the sector with the initial change in economic output, which in this case is the manufacturing sector. Indirect effects are changes in industries that provide inputs to sectors with increased economic output. Induced effects are changes in industries that provide goods and services to employees in directly and indirectly affected industries (i.e. changes due to increased household income and associated spending).

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### Economic Impacts of Proposed Forestry Related Enterprises

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more significant impacts on a local economy compared to a change in the sales of other sectors. This is because households typically spend most of their income locally, in both retail and service industries. For this analysis, household spending is an important driver of impact as employees in directly and indirectly affected sectors spend their increased income.

This study utilizes an economic model known as IMPLAN to develop this understanding of the local economy, including the sectors that exist in a local area, the links between them, and the level of economic activity. This remainder of this section describes this IMPLAN model and the approach used to measure the total impacts of the proposed forestry-related enterprises in the local three-county economy.

#### **2.2.2 IMPLAN Model**

The regional economic impacts were estimated using IMPLAN (Impact Analysis for Planning), a commonly used economic input-output (I-O) model. I-O models are constructed based on the concept that all industries within an economy are linked together; the output of one industry becomes the input of another industry until all final goods and services are produced. I-O models can be used both to analyze the structure of a regional economy and to estimate the total economic impact of projects or policies. For this analysis, an economic model was constructed of the Klamath, Deschutes, and Jackson Counties using 2008 IMPLAN software and data (the most recent available) and used to estimate economic impacts of the proposed forestry-related enterprises. Separate analyses were conducted to estimate impacts from the construction and the operations phases of the proposed enterprises. The model was used to estimate total value added and employment.

Value added is the sum of labor income (including employee and proprietor income and all payroll and benefits), taxes paid, and gross operating surplus or profit. Value added is a measure of the contribution to GDP of the proposed enterprise. Employment represents the annual average number of employees, whether full or part-time, of the businesses producing output. Value added and employment represent the net economic benefits that accrue to the region as a result of increased economic output.

The size of the indirect and induced effects is measured by the multiplier, which as noted above, is a measure of the strength of the linkages between the proposed enterprise and other businesses in the local economy and the degree that spending is used to buy products from local businesses rather than used to import goods or services produced elsewhere. IMPLAN can be used to estimate the total multiplier effects of a change in output in the industry under study, in our case forestry-related businesses, that are due to the resultant change in demand for labor and goods and services used as inputs to our enterprises (backward linkages). However, the forestry enterprises has not only backward linkages to businesses such as timber operations and equipment manufacturers that supply inputs, but also has forward linkages to industries that purchase products from the proposed enterprises. IMPLAN does not measure the impacts to forward linked industries; these must be assessed by the analyst outside the model and then entered as a direct change in output (known as final demand) to the forward-linked industry. Forward linkages in this model are anticipated to be small, as little additional processing of the outputs of our proposed enterprises is expected, and are not analyzed in this report.

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**Economic Impacts of Proposed Forestry Related Enterprises**

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**2.2.2.1 Limitations of the IMPLAN Model**

IMPLAN analysis has some limitations. One of the most important is that of fixed proportions: for any good or service, all inputs are combined in fixed proportions that are constant regardless of the level of output. Hence, there is no substitution among production inputs and no economies of scale are possible. Second, each production function incorporates fixed technology, so for example the same proportion of labor and capital are used. These limitations are not a significant concern in our analysis as the inputs for each enterprise were identified through a site-specific analysis by The Beck Group. Third, I-O does not model any price effects that might be important to a region. Regardless of the level of production, it is assumed that price and returns per unit of production are constant. Again, this limitation is not a concern in our analysis as no price effects are expected due to the proposed enterprises as the level of production is relatively small. Finally, I-O assumes that resources that become unemployed or employed due to a change in final demand have no alternative employment.

The IMPLAN database contains 509 sectors at the national level. While this is a large number of sectors, some sectors contain a wide range of products or services and the production functions reflect the average or aggregate production technology for the goods or services produced. For example, while there is an electricity generation sector in IMPLAN, there is no industry sector in IMPLAN that corresponds specifically to biomass power production. To tailor the analysis as much as possible to the proposed enterprises, the data on expenditures from each enterprise was separately entered in the model rather than using national average production functions imbedded in the IMPLAN model.

**2.3 Estimate Direct and Total Economic Impacts**

The economic impact analysis estimated the total number of additional jobs and value added that are estimated to accrue to the local economy due to the proposed enterprises. To estimate the economic impact of enterprise-related expenditures shown in **Table 2-1**, more analytical steps are necessary. First, it was necessary to estimate the proportion of expenditures that would occur locally within the 3-county study area. Also, as noted above, there is no industry sector in IMPLAN that exactly corresponds with biomass power production or the other proposed enterprises, so it is necessary to identify how construction and operation costs will be spent in different sectors of the local economy. These expenditures were used as inputs to the IMPLAN model to estimate the total economic impacts of the proposed enterprises. Detailed tables are provided in **Appendix A** that summarize the estimated total expenditures and the local share for each proposed enterprise.

## Chapter 3

## Economic Impact Estimates

This section presents the estimated economic impacts, in terms of increased jobs and value added, of each of the five proposed enterprises. **Table 3-1** summarizes estimated total economic impacts (direct, indirect, and induced) for each individual enterprise for construction and operations phases. Total economic impacts of each individual enterprise were estimated assuming that no other enterprises were developed.

### 3.1 Summary of Economic Impacts

The estimated total economic impact of all enterprises (presented in the bottom row of **Table 3-1**) assumes that all enterprises are developed simultaneously. As one enterprise, the forestry organization, would provide inputs to the other enterprises, the sum of the total effects of all four enterprises presented in **Table 3-1** is smaller than the sum of each individual enterprise (i.e. some of the indirect effects of the biomass power plant, wood shavings plant, and wood chipping plant are already included in the forestry organization effects).

In total, assuming all enterprises are constructed, it is estimated that approximately 230 to 270 jobs in the region may be supported during the initial start-up and construction phase. During operations, we estimate that all enterprises would support 195 to 210 full and part-time jobs, and \$15.7 to \$16.7 million in value added. Over the next 20 years, spanning both the construction and operations phases in all five projects, the total value added (including income, taxes, benefits) that the enterprises would support in the region is estimated at \$245.3 to \$263.2 million, depending on which biomass power plant is constructed.

**Table 3-1 Estimated Total Economic Impacts (Direct, Indirect, and Induced) of Proposed Forestry – Related Enterprises: Klamath, Deschutes, and Jackson Counties**

Enterprise	Construction Phase: One-Time		Operations Phase: Annual, Ongoing		Present Value: 2011-2030
	Employment	Value Added (Millions \$)	Employment	Value Added (Millions \$)	Value Added (Millions \$)
Power Plant					
<i>Stand Alone</i>	200	\$10.0	110	\$10.2	\$161.2
<i>Giiwas Cogen</i>	230	\$11.5	110	\$10.5	\$167.8
<i>Gilchrist Cogen</i>	240	\$12.1	130	\$11.4	\$181.3
Forestry Organization	10	\$0.8	30	\$2.6	\$40.2
Wood Shavings Plant	20	\$0.9	20	\$1.2	\$18.6
Wood Chipping Plant	insignificant	\$0.1	40	\$4.1	\$61.5
Mazama Tree Farm	N/A	N/A	20	\$0.8	\$12.3
<b>Total (5 Enterprises)</b>	<b>230 – 270</b>	<b>\$11.9 - \$13.9</b>	<b>195-210</b>	<b>\$15.7 - \$16.7</b>	<b>\$245.3 - \$263.2</b>

Note: The "Total" range is due to the different impacts estimated for the three variations of the power plant. Additionally, the "Total" does not sum. The forestry organization captures a portion of the 'indirect' effects of the other enterprises, so summing all enterprises would result in double-counting of some effects.

Economic Impacts of Proposed Forestry Related Enterprises

As indicated in the table, there are three proposed variations of the power plant: stand alone at Giiwas, cogeneration plant at Giiwas, and cogeneration plant at Gilchrist. In each variation, the employment and value added supported by the power plant is the largest of the proposed enterprises for both the construction and the operations phases. In the construction phase, approximately 200 to 240 full and part-time jobs and \$10.0 million to \$12.1 million in value added may be supported in the 3-county region to provide labor and materials to construct the power plant. During operations, the power plant is expected to support approximately 10 to 15 employees at the plant, and an additional 90 to 120 in other sectors through purchase of biomass fuel, ongoing repair and maintenance services, truck transportation, and other supplies. Total value added that would be annually supported at the power plant is estimated at \$10.2 to \$11.4 million annually.

The other three new enterprises, the forestry organization, the wood shavings plant, and the wood chipping plant have a similar magnitude of economic impacts. Each supports approximately 0 to 20 jobs and \$0.1 to \$0.9 million in value added in the initial construction phase, and between 20 to 40 jobs and \$1.2 million to \$4.1 million in value added during the operations phase. The Mazama Tree farm, which is a purchase of an existing enterprise by the Tribes, is expected to result in slightly less additional employment and income of just under 20 jobs and approximately \$0.8 in income annually (note that this is employment and income *in excess* of current levels estimated to be supported at the tree farm).

Figures 3-1 and 3-2 highlight total impacts by sector during the long-term operations phase. As indicated in the figures, the sectors with the most economic impacts are the agricultural (which includes forestry enterprises), manufacturing, TIPU (Transportation, Information, and Public Utilities), trade, and service industries.

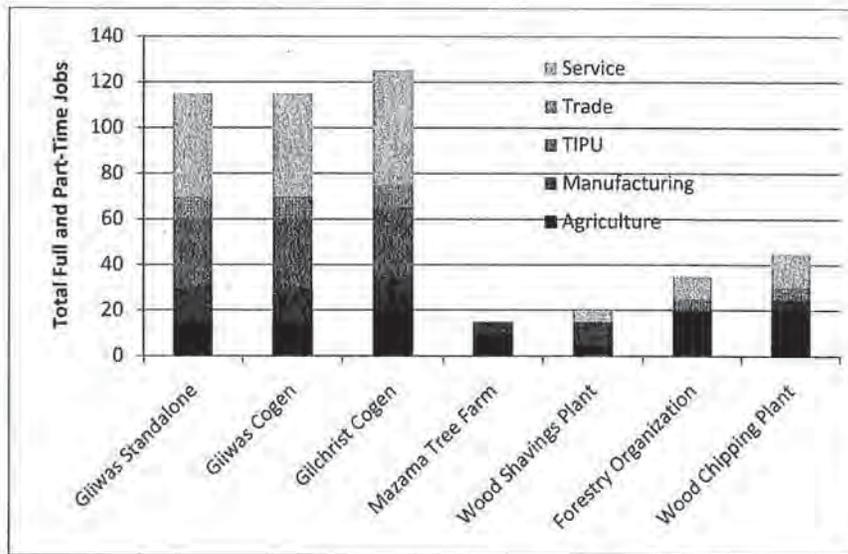


Figure 3-1 Annual Employment by Sector by Enterprise.

### Economic Impacts of Proposed Forestry Related Enterprises

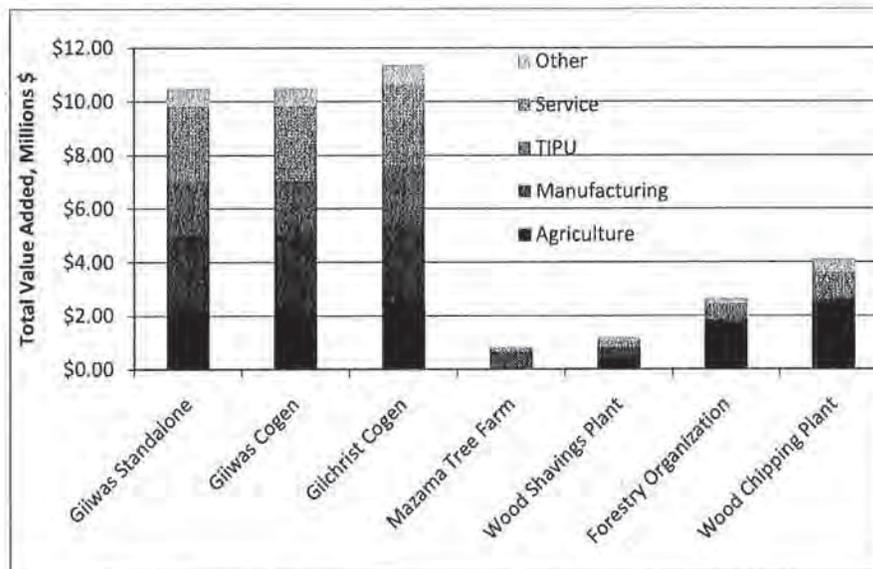


Figure 3-2 Annual Value Added by Sector by Enterprise.

While **Table 3-1** and **Figures 3-1** and **3-2** summarize total economic impact, including the indirect and induced effects in other economic sectors, **Figure 3-3** and **Table 3-2** highlight the magnitude of the employment multiplier effect of each enterprise. The multiplier is equivalent to the ratio of total economic impact to direct economic impact. For example, the Gilchrist Cogeneration plant would directly employ an estimated 15 people at the facility, but would support an additional 110 people at other business, resulting in total employment of approximately 125. This equates to a multiplier of 8.4; for every job at the Gilchrist Cogeneration facility, there are an estimated 8.4 total jobs created, or 7.4 *additional* jobs created at other local businesses (5.1 indirect jobs and 2.3 induced jobs). This high multiplier indicates heavy reliance of the biomass facility on goods and services provided by the local economy, in particular wood fuel, trucking, maintenance, permitting, and utilities. The other biomass power plant alternatives have similarly high multipliers, while the wood chipping plant has an even higher multiplier at 14.9 (due to relatively few employees at the facility but a significant number of jobs being created in the forestry sector to supply the raw wood product material to the facility). The other enterprises have lower multipliers ranging from 1.3 for the Mazama Tree Farm to 2.2 for the wood shavings plant.

Economic Impacts of Proposed Forestry Related Enterprises

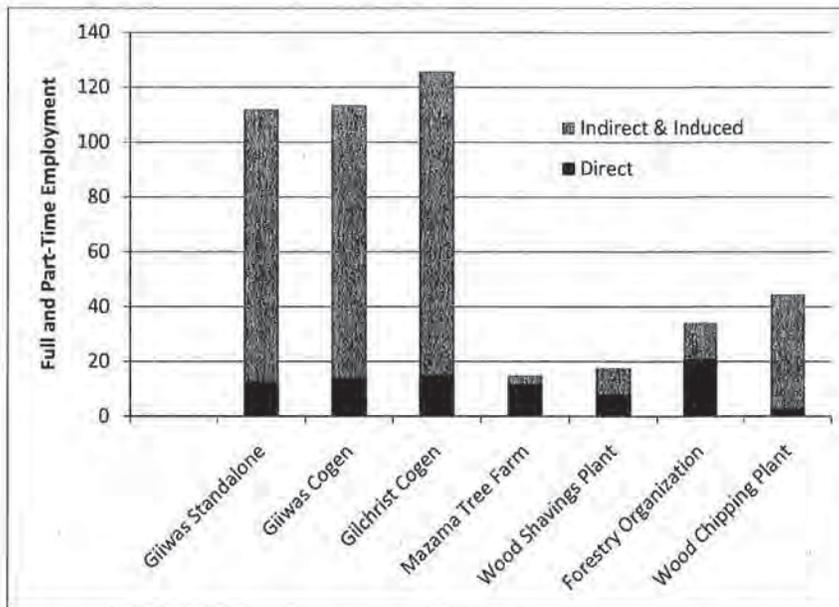


Figure 3-3 Estimated Direct, Indirect, and Induced Annual Employment Comparison by Enterprise.

Table 3-2 Estimated Annual Multiplier Effects

Proposed Enterprise	Direct Employment Multiplier (A)	Indirect Employment Multiplier (B)	Induced Employment Multiplier (C)	Total Employment Multiplier (A+B+C)
Biomass Power Plant				
Giiwas Stand alone	1.0	5.2	2.4	8.6
Giiwas Cogen	1.0	4.8	2.3	8.1
Gilchrist Cogen	1.0	5.1	2.3	8.4
Forestry Organization	1.0	0.0	0.6	1.6
Wood Shavings Plant	1.0	0.7	0.5	2.2
Wood Chipping Plant	1.0	9.9	3.9	14.9
Mazama Tree Farm	1.0	0.0	0.5	1.3

As indicated in **Table 3-2**, developing the proposed enterprises will not only directly support employment and income at the facilities, but will also support jobs and income at a myriad of other local businesses, including businesses in the construction, transportation, retail, trade, services, utilities, and forestry sectors.

Detailed results detailed tables on the direct, indirect, and induced effects of the five proposed forestry-related enterprises are presented below. Impacts are presented by project phase (construction and operations) and by economic sector.

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**Economic Impacts of Proposed Forestry Related Enterprises**

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**3.2 Biomass Power Plant**

Total employment and value added impacts supported by the three alternatives for the biomass power plant are presented in **Tables 3-3 to 3-8** below. As indicated in **Table 3-1**, of the three alternatives, the Gilchrist cogeneration facility would result in the largest economic impact, while the Giiwas stand alone facility would have the smallest economic impact. (The Giiwas cogeneration facility would have slightly greater economic impact than the Giiwas stand alone facility.) However, the economic activity supported by each facility variation are fairly similar, with the impacts of the Gilchrist cogeneration facility a little more than 10 percent greater than the impacts of the Giiwas stand alone facility. Detailed impacts for each power plant alternative are presented below.

**3.2.1 Giiwas Stand Alone Power Plant**

Total employment and value added impacts supported by the Giiwas stand alone power plant are presented in **Table 3-3** (operations) and **Table 3-4** (construction) below. As indicated in the tables, during the operations phase, approximately 15 employees and \$2.61 million in value added are supported directly by the enterprise (note that this does not include value added related to enterprise profits). Expenditures in the local economy by the power plant and its employees result in indirect and induced impacts of approximately 100 additional employees and \$7.55 million in value added, primarily in the agriculture (which includes forestry), TIPU (transportation, information, and public utilities), and services sectors. Initial capital investment and construction of the power plant provide a short-term boost to the local economy, with approximately 135 employees and \$5.77 million in value added supported directly and an additional 70 employees and \$4.27 million in value added supported through indirect and induced impacts.

Economic Impacts of Proposed Forestry Related Enterprises

Table 3-3 Summary of Giiwas Stand Alone Power Plant: Operations

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	15	0	15
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	15	0	0	15
TIPU	0	30	0	30
Trade	0	0	5	10
Service	0	20	25	45
Government	0	0	0	0
<b>Total Employment</b>	<b>15</b>	<b>70</b>	<b>30</b>	<b>110</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$2.21	\$0.00	\$2.22
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.04	\$0.01	\$0.05
Manufacturing	\$2.61	\$0.01	\$0.01	\$2.62
TIPU	\$0.00	\$1.91	\$0.07	\$1.98
Trade	\$0.00	\$0.11	\$0.37	\$0.48
Service	\$0.00	\$1.22	\$1.46	\$2.68
Government	\$0.00	\$0.10	\$0.03	\$0.13
<b>Total Value Added</b>	<b>\$2.61</b>	<b>\$5.60</b>	<b>\$1.95</b>	<b>\$10.16</b>

Notes: Totals may not sum due to rounding. TIPU is Transportation, Information, and Public Utilities.

## Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-4 Summary of Stand Alone Giiwas Plant: Construction**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Construction	120	0	0	120
Manufacturing	0	0	0	0
TIPU	0	0	0	0
Trade	0	0	10	10
Service	15	20	30	70
Government	0	0	0	0
<b>Total Employment</b>	<b>135</b>	<b>25</b>	<b>45</b>	<b>205</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$0.00	\$0.01	\$0.01
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$5.01	\$0.01	\$0.02	\$5.04
Manufacturing	\$0.00	\$0.03	\$0.01	\$0.04
TIPU	\$0.00	\$0.08	\$0.10	\$0.18
Trade	\$0.00	\$0.25	\$0.52	\$0.77
Service	\$0.76	\$1.15	\$2.04	\$3.96
Government	\$0.00	\$0.02	\$0.04	\$0.05
<b>Total Value Added</b>	<b>\$5.77</b>	<b>\$1.53</b>	<b>\$2.74</b>	<b>\$10.04</b>

Notes: Totals may not sum due to rounding. TIPU is Transportation, Information, and Public Utilities.

### 3.2.2 Giiwas Cogeneration Plant

Total employment and value added impacts supported by the Giiwas cogeneration power plant are presented in **Table 3-5** (operations) and **Table 3-6** (construction) below. As indicated in the tables, during the operations phase, approximately 15 employees and \$2.96 million in value added are supported directly by the enterprise (note that this does not include value added related to enterprise profits). Expenditures in the local economy by the power plant facility and its employees result in indirect and induced impacts of approximately 100 additional employees and \$7.55 million in value added, primarily in the agriculture (which includes forestry), TIPU (transportation, information, and public utilities), and services sectors. Initial capital investment and construction of the power plant provide a short-term boost to the local economy, with approximately 155 employees and \$6.59 million in value added supported directly and an additional 80 employees and \$4.9 million in value added supported through indirect and induced impacts.

Economic Impacts of Proposed Forestry Related Enterprises

Table 3-5 Summary of Giiwas Cogeneration Plant: Operations

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	15	0	15
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	15	0	0	15
TIPU	0	25	0	30
Trade	0	0	5	10
Service	0	20	25	45
Government	0	0	0	0
<b>Total Employment</b>	<b>15</b>	<b>70</b>	<b>30</b>	<b>115</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$2.11	\$0.00	\$2.11
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.04	\$0.02	\$0.06
Manufacturing	\$2.96	\$0.01	\$0.01	\$2.97
TIPU	\$0.00	\$1.88	\$0.07	\$1.95
Trade	\$0.00	\$0.11	\$0.38	\$0.49
Service	\$0.00	\$1.32	\$1.49	\$2.80
Government	\$0.00	\$0.10	\$0.03	\$0.12
<b>Total Value Added</b>	<b>\$2.96</b>	<b>\$5.56</b>	<b>\$1.99</b>	<b>\$10.51</b>

Notes: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-6 Summary of Giiwas Cogeneration Plant: Construction**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Construction	135	0	0	135
Manufacturing	0	0	0	0
TIPU	0	0	0	0
Trade	0	5	10	15
Service	20	25	35	80
Government	0	0	0	0
<b>Total Employment</b>	<b>155</b>	<b>30</b>	<b>50</b>	<b>235</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$0.00	\$0.01	\$0.01
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$5.63	\$0.01	\$0.02	\$5.67
Manufacturing	\$0.00	\$0.03	\$0.01	\$0.05
TIPU	\$0.00	\$0.10	\$0.11	\$0.20
Trade	\$0.00	\$0.28	\$0.60	\$0.87
Service	\$0.96	\$1.33	\$2.34	\$4.62
Government	\$0.00	\$0.02	\$0.04	\$0.06
<b>Total Value Added</b>	<b>\$6.59</b>	<b>\$1.77</b>	<b>\$3.13</b>	<b>\$11.48</b>

Notes: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

#### 3.2.3 Gilchrist Cogeneration Plant

Total employment and value added impacts supported by the Giiwas cogeneration power plant are presented in **Table 3-7** (operations) and **Table 3-8** (construction) below. As indicated in the tables, during the operations phase, approximately 15 employees and \$2.94 million in value added are supported directly by the enterprise (note that this does not include value added related to enterprise profits). Expenditures in the local economy by the power plant facility and its employees result in indirect and induced impacts of approximately 110 additional employees and \$8.44 million in value added, primarily in the agriculture (which includes forestry), TIPU (transportation, information, and public utilities), and services sectors. Initial capital investment and construction of the power plant provide a short-term boost to the local economy, with approximately 165 employees and \$6.93 million in value added supported directly and an additional 85 employees and \$5.14 million in value added supported through indirect and induced impacts.

Economic Impacts of Proposed Forestry Related Enterprises

Table 3-7. Summary of Gilchrist Cogeneration Plant: Operations

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	20	0	20
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	15	0	0	15
TIPU	0	30	0	30
Trade	0	0	5	10
Service	0	25	25	50
Government	0	0	0	0
<b>Total Employment</b>	<b>15</b>	<b>75</b>	<b>35</b>	<b>125</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$2.45	\$0.00	\$2.45
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.04	\$0.02	\$0.06
Manufacturing	\$2.94	\$0.01	\$0.01	\$2.95
TIPU	\$0.00	\$2.11	\$0.08	\$2.18
Trade	\$0.00	\$0.13	\$0.41	\$0.53
Service	\$0.00	\$1.45	\$1.60	\$3.05
Government	\$0.00	\$0.11	\$0.03	\$0.14
<b>Total Value Added</b>	<b>\$2.94</b>	<b>\$6.29</b>	<b>\$2.15</b>	<b>\$11.38</b>

Notes: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-8 Summary of Gilchrist Cogeneration Plant: Construction**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Construction	145	0	0	145
Manufacturing	0	0	0	0
TIPU	0	0	0	0
Trade	0	5	10	15
Service	20	25	40	85
Government	0	0	0	0
<b>Total Employment</b>	<b>165</b>	<b>30</b>	<b>55</b>	<b>245</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$0.00	\$0.01	\$0.01
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$5.95	\$0.01	\$0.03	\$5.99
Manufacturing	\$0.00	\$0.04	\$0.01	\$0.05
TIPU	\$0.00	\$0.10	\$0.12	\$0.22
Trade	\$0.00	\$0.29	\$0.63	\$0.92
Service	\$0.98	\$1.39	\$2.46	\$4.83
Government	\$0.00	\$0.02	\$0.04	\$0.07
<b>Total Value Added</b>	<b>\$6.93</b>	<b>\$1.85</b>	<b>\$3.29</b>	<b>\$12.08</b>

Notes: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### 3.3 Forestry Organization

Total employment and value added impacts supported by the forestry organization are presented in **Table 3-9** (operations) and **Table 3-10** (construction) below. As indicated in the tables, during the operations phase, approximately 20 employees and \$1.81 million in value added are supported directly by the enterprise. Expenditures in the local economy by the forestry organization and its employees result in indirect and induced impacts of approximately 15 additional employees and \$0.83 million in value added, primarily in the trade and services sectors. This is due to the fact that nearly all ongoing multiplier effects are due to increased income translating into increased household spending in these sectors (induced impacts). Initial capital investment to form the forestry organization provides a short-term boost to the local economy, with approximately 10 employees and \$0.56 million in value added supported directly and an additional 5 employees and \$0.26 million in value added supported through indirect and induced impacts.

Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-9 Summary of Forestry Organization: Annual Ongoing Operations**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	20	0	0	20
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	0	0	0	0
TIPU	0	0	0	0
Trade	0	0	5	5
Service	0	0	10	10
Government	0	0	0	0
<b>Total Employment</b>	<b>20</b>	<b>0</b>	<b>15</b>	<b>35</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$1.81	\$0.00	\$0.00	\$1.81
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.01	\$0.01
Manufacturing	\$0.00	\$0.00	\$0.00	\$0.00
TIPU	\$0.00	\$0.00	\$0.03	\$0.03
Trade	\$0.00	\$0.02	\$0.15	\$0.17
Service	\$0.00	\$0.01	\$0.59	\$0.61
Government	\$0.00	\$0.00	\$0.01	\$0.01
<b>Total Value Added</b>	<b>\$1.81</b>	<b>\$0.04</b>	<b>\$0.79</b>	<b>\$2.64</b>

Notes: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-10 Summary of Forestry Organization: Initial, One-Time Start-Up Impacts**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	0	0	0	0
TIPU	0	0	0	0
Trade	10	0	0	10
Service	0	0	5	5
Government	0	0	0	0
<b>Total Employment</b>	<b>10</b>	<b>0</b>	<b>5</b>	<b>15</b>
<b>Value Added (2011 Millions\$)</b>				
Agriculture	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.00	\$0.00
Manufacturing	\$0.00	\$0.00	\$0.00	\$0.00
TIPU	\$0.00	\$0.01	\$0.01	\$0.01
Trade	\$0.56	\$0.00	\$0.04	\$0.61
Service	\$0.00	\$0.04	\$0.16	\$0.20
Government	\$0.00	\$0.00	\$0.00	\$0.01
<b>Total Value Added</b>	<b>\$0.56</b>	<b>\$0.05</b>	<b>\$0.21</b>	<b>\$0.83</b>

Note: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### 3.4 Wood Shavings Plant

Total employment and value added impacts supported by the wood shavings plant are presented in **Table 3-11** (operations) and **Table 3-12** (construction) below. As indicated in the tables, during the operations phase, approximately 10 employees and \$0.32 million in value added are supported directly at the facility. Expenditures in the local economy by the facility and its employees result in indirect and induced impacts of approximately 10 additional employees and \$0.86 million in value added, primarily in the service sectors. Construction of the facility provides a short-term boost to the local economy, with approximately 10 employees and \$0.54 million in value added supported directly and an additional 5 employees and \$0.34 million in value added supported through indirect and induced impacts.

Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-11 Summary of Wood Shavings Plant: Annual Ongoing Operations**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	5	0	5
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	10	0	0	10
TIPU	0	0	0	0
Trade	0	0	0	0
Service	0	0	5	5
Government	0	0	0	0
<b>Total Employment</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>20</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$0.42	\$0.00	\$0.42
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.00	\$0.00
Manufacturing	\$0.32	\$0.03	\$0.00	\$0.36
TIPU	\$0.00	\$0.05	\$0.01	\$0.06
Trade	\$0.00	\$0.06	\$0.05	\$0.11
Service	\$0.00	\$0.04	\$0.20	\$0.24
Government	\$0.00	\$0.00	\$0.00	\$0.00
<b>Total Value Added</b>	<b>\$0.32</b>	<b>\$0.60</b>	<b>\$0.26</b>	<b>\$1.19</b>

Note: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-12 Summary of Wood Shavings Plant: Initial, One-Time Construction Impacts**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Construction	5	0	0	5
Manufacturing	0	0	0	0
TIPU	0	0	0	0
Trade	0	0	0	0
Service	5	0	5	10
Government	0	0	0	0
<b>Total Employment</b>	<b>10</b>	<b>0</b>	<b>5</b>	<b>15</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.14	\$0.00	\$0.00	\$0.14
Manufacturing	\$0.00	\$0.00	\$0.00	\$0.00
TIPU	\$0.00	\$0.01	\$0.01	\$0.02
Trade	\$0.00	\$0.02	\$0.04	\$0.06
Service	\$0.39	\$0.09	\$0.17	\$0.65
Government	\$0.01	\$0.00	\$0.00	\$0.01
<b>Total Value Added</b>	<b>\$0.54</b>	<b>\$0.12</b>	<b>\$0.23</b>	<b>\$0.89</b>

Note: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### 3.5 Wood Chipping Plant

Total employment and value added impacts supported by the wood chipping plant are presented in **Table 3-13** (operations) and **Table 3-14** (construction) below. As indicated in the tables, during the operations phase, approximately 5 employees and \$0.16 million in value added are supported directly at the facility. Expenditures in the local economy by the facility and its employees result in indirect and induced impacts of approximately 40 additional employees and \$3.97 million in value added, primarily in the trade and services sectors. Construction of the facility provides an insignificant short-term boost to the local economy, with fewer than five employees and \$0.14 million in value added supported in all sectors.

Economic Impacts of Proposed Forestry Related Enterprises

Table 3-13 Summary of Wood Chipping Plant: Annual Ongoing Operations

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	20	0	20
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	5	0	0	5
TIPU	0	0	0	0
Trade	0	5	5	5
Service	0	5	10	15
Government	0	0	0	0
<b>Total Employment</b>	<b>5</b>	<b>30</b>	<b>10</b>	<b>45</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$2.47	\$0.00	\$2.47
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.01	\$0.01
Manufacturing	\$0.16	\$0.00	\$0.00	\$0.16
TIPU	\$0.00	\$0.02	\$0.03	\$0.04
Trade	\$0.00	\$0.34	\$0.14	\$0.48
Service	\$0.00	\$0.39	\$0.55	\$0.94
Government	\$0.00	\$0.01	\$0.01	\$0.02
<b>Total Value Added</b>	<b>\$0.16</b>	<b>\$3.23</b>	<b>\$0.74</b>	<b>\$4.13</b>

Notes: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### Economic Impacts of Proposed Forestry Related Enterprises

**Table 3-14 Summary of Wood Chipping Plant: Initial, One-Time Construction Impacts**

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	0	0	0	0
TIPU	0	0	0	0
Trade	0	0	0	0
Service	0	0	0	0
Government	0	0	0	0
<b>Total Employment</b>	<b>Insignificant</b>	<b>Insignificant</b>	<b>Insignificant</b>	<b>Insignificant</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.00	\$0.00
Manufacturing	\$0.00	\$0.00	\$0.00	\$0.00
TIPU	\$0.00	\$0.00	\$0.00	\$0.00
Trade	\$0.09	\$0.00	\$0.01	\$0.10
Service	\$0.00	\$0.01	\$0.03	\$0.03
Government	\$0.00	\$0.00	\$0.00	\$0.00
<b>Total Value Added</b>	<b>\$0.09</b>	<b>\$0.01</b>	<b>\$0.04</b>	<b>\$0.14</b>

Note: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

### 3.6 Mazama Tree Farm

Total employment and value added impacts supported by the more intensive management anticipated under tribal ownership are presented in **Table 3-15**. Impacts are only estimated for operations as it is anticipated that initial capital investment to assume ownership would be minor. As indicated in the tables, during the operations phase, approximately 10 new employees and \$0.65 million in additional employee income would be supported directly at the tree farm (additional value added may accrue if profitability of the tree farm rises as well). Although the Mazama Tree Farm is an existing forestry enterprise, communication with representatives of the Klamath Tribes indicates that additional economic activity will result from tribal ownership. In particular, it is expected that the number of jobs will increase on the project due to three factors: 1) increased overall professional management (including by biologists, foresters, and restoration professionals), program for stand improvement that will include thinning operations, and 3) more active timber extraction activities.

In total, these activities are expected to result in approximately 10 additional jobs with compensation of approximately \$650,000 annually *in excess* of current compensation and employment at the Mazama Tree Farm. Compensation was estimated based on data from The Beck Group that management positions may be compensated at approximately \$60,000 annually

Economic Impacts of Proposed Forestry Related Enterprises

while timber crews may be compensated at approximately \$40,000 annually. Other economic activity on the Mazama Tree Farm may also result from Tribal management, but is not expected. Expenditures in the local economy by the enhanced tree farm management and its employees are estimated to result in indirect and induced impacts of approximately 5 additional employees and \$0.17 million in value added, primarily in the trade and services sectors.

Table 3-15 Summary of Mazama Tree Farm: Annual Ongoing Impacts

Sector	Direct	Indirect	Induced	Total
<b>Employment (Full and Part-Time Jobs)</b>				
Agriculture	10	0	0	10
Mining	0	0	0	0
Construction	0	0	0	0
Manufacturing	0	0	0	5
TIPU	0	0	0	0
Trade	0	0	0	0
Service	0	0	0	0
Government	0	0	0	0
<b>Total Employment</b>	<b>10</b>	<b>0</b>	<b>5</b>	<b>15</b>
<b>Value Added (2011 Millions \$)</b>				
Agriculture	\$0.65	\$0.00	\$0.00	\$0.00
Mining	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.00	\$0.00
Manufacturing	\$0.00	\$0.00	\$0.00	\$0.65
TIPU	\$0.00	\$0.00	\$0.01	\$0.01
Trade	\$0.00	\$0.00	\$0.03	\$0.03
Service	\$0.00	\$0.00	\$0.13	\$0.13
Government	\$0.00	\$0.00	\$0.00	\$0.00
<b>Total Value Added</b>	<b>\$0.65</b>	<b>\$0.00</b>	<b>\$0.17</b>	<b>\$0.83</b>

Note: Totals may not sum due to rounding. TIPU is (Transportation, Information, and Public Utilities).

## Appendix A

## Detailed Tables of Expenditures by Proposed Enterprise

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This appendix provides the detail on the expenditures for each enterprise that were analyzed in this study. The expenditures for each enterprise were used as inputs in the IMPLAN economic model to estimate total impacts on all sectors from increased household spending (induced impacts due to changes in employee compensation) and total impacts on all sectors of increased demand for local goods and services (indirect impacts due to demand from the proposed enterprises). Expenditures for retail goods such as fuel or capital equipment were 'margined' in IMPLAN to estimate only the impact on the retail sector as there is little to no petroleum extraction and refining in the study area nor is it expected that equipment required in the study area would be manufactured in the area. Tables A-1 through A-4 summarize estimated operations and construction/capital expenditures by the biomass power facility, forestry organization, wood shavings facility, and wood chipping facility. Data for these tables is from The Beck Group.

Although the Mazama Tree Farm is an existing forestry enterprise, communication with representatives of the Klamath Tribes indicates that additional economic activity will result from tribal ownership. In particular, it is expected that the number of jobs will increase on the project due to three factors: 1) increased overall professional management (including by biologists, foresters, and restoration professionals), program for stand improvement that will include thinning operations, and 3) more active timber extraction activities. In total, these activities are expected to result in 12 additional jobs with compensation of approximately \$650,000 annually *in excess* of current compensation at the Mazama Tree Farm. Compensation was estimated based on data from The Beck Group that management positions may be compensated at approximately \$60,000 annually while timber crews may be compensated at approximately \$40,000 annually. Additional purchase of goods or services may also result from Tribal management, but is not expected.

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Table A-1 Detailed Estimates of Expenditures: Biomass Power Plant Facility Alternatives

Type of Expenditure	Standalone Giiwas	Giiwas Cogeneration	Gilchrist Cogeneration	% Local
<b>Operations</b>				
Employee Compensation	\$1,203,186	\$1,300,596	\$1,224,614	100%
Fuel Supply				
Truck Transportation	\$2,513,231	\$2,391,600	\$2,777,785	100%
Forestry Industry	\$3,769,846	\$3,587,400	\$4,166,678	100%
Ash hauling/disposal				
Truck Transportation	\$44,812	\$52,000	\$59,500	100%
Waste Management	\$44,812	\$52,000	\$59,500	100%
Other Operations and Maintenance				
Consumables	\$490,412	\$512,099	\$580,362	25%
Environmental Costs	\$136,964	\$140,252	\$154,164	75%
Routine Maintenance	\$600,000	\$700,000	\$763,000	100%
Major Maintenance	\$110,000	\$116,000	\$125,000	100%
Capital Expenditure	\$20,000	\$20,000	\$20,000	0%
Utilities	\$819,000	\$861,000	\$888,300	100%
Insurance	\$182,968	\$207,735	\$222,030	100%
Taxes	\$702,419	\$828,141	\$855,635	100%
<b>Construction</b>				
Power Plant facilities				
Capital Equipment	\$25,500,000	\$28,700,000	\$30,780,000	0%
Engineering	\$6,000,000	\$7,100,000	\$7,695,000	25%
Construction	\$11,000,000	\$12,000,000	\$12,825,000	75%
Fuel receiving, processing, storage facilities				
Equipment	\$2,800,000	\$3,150,000	\$3,500,000	0%
Construction	\$1,200,000	\$1,350,000	\$1,500,000	100%
Project Management / Permitting / Engineering	\$900,000	\$1,000,000	\$1,000,000	0
Site preparation/roads/fencing costs	\$350,000	\$400,000	\$400,000	100%
Interconnection/Water/Sewer	\$1,400,000	\$1,600,000	\$1,800,000	100%
Dry Kilns				
Capital Equipment		\$2,600,000		0%
Engineering		\$400,000		25%
Construction		\$1,000,000		25%
Working Capital	\$2,500,000	\$2,500,000	\$2,900,000	0%

Source: Personal communication with The Beck Group.

### Economic Impacts of Proposed Forestry Related Enterprises

**Table A-2 Detailed Estimates of Expenditures: Forestry Organization**

Type of Expense	Purchase Value	% Local
<b>Operations</b>		
Employee Compensation	\$1,812,823	100%
Woods Supplies and Services		
Fuel and Lube	\$85,785	100%
Maintenance and Repairs	\$329,790	100%
Annual Truck Supplies and Services		
Fuel	\$230,400	100%
Tires	\$41,600	100%
Oil and Lubrication	\$28,908	100%
Maintenance and repairs	\$57,040	100%
Grinding Supplies and Services		
Fuel and Lube	\$224,844	100%
Maintenance and Repairs	\$84,484	100%
Other		
Office/Building Expenses	\$18,000	100%
Office Utilities (phone/water/power)	\$10,000	100%
<b>Initial Capital Expenses</b>		
In-Woods Equipment		
Feller Buncher on a tracked carriage	\$475,000	100%
Wheeled Grapple Skidder	\$300,000	100%
Delimber on a tracked carriage	\$500,000	100%
Excavator with a grapple log loading attachment	\$300,000	100%
Service Truck	\$70,000	100%
Trucking Equipment		
Log Truck and Trailer (4)	\$580,000	100%
Chip Truck and Trailer (2)	\$380,000	100%
Grinding Equipment		
Front End Loader	\$600,000	100%
Horizontal Bed, Tracked Grinder	\$475,000	100%
Loader with Biobucket	\$300,000	100%
Service Truck	\$60,000	100%
Semi-Tractor & Equipment Trailer (used)	\$75,000	100%
Fuel Tank	\$5,000	100%
Water Truck	\$30,000	100%

Economic Impacts of Proposed Forestry Related Enterprises

**Table A-3 Detailed Estimates of Expenditures: Wood Shavings Plant**

Type of Expense	Purchase Value	% Local
<b>Operations</b>		
Employee Compensation	\$323,220	100%
Raw material cost	\$714,809	100%
Direct Manufacturing Costs		
Packaging	\$334,973	26%
Utilities	\$59,055	100%
Supplies	\$42,000	100%
Repair and maintenance	\$10,000	100%
<b>Construction</b>		
Purchased and Fabricated Equipment	\$1,844,549	0%
Mechanical Installation	\$216,610	100%
Electrical Installation	\$388,300	100%
Spare Parts	\$84,244	0%
Freight	\$94,175	0%
Project Management	\$88,257	25%
Contingency	\$294,191	0%
Building and Site Prep	\$314,003	100%
Permits	\$25,000	100%

**Table A-4 Detailed Estimates of Expenditures: Wood Chipping Plant**

Local Purchase Value	Purchase Value	% Local
<b>Operations</b>		
Employee Compensation	\$156,280	100%
Raw material cost	\$4,200,000	100%
Direct Manufacturing Costs		
Other Supplies		
Fuel	\$464,802	50%
Other Supplies/Repairs	\$566,918	50%
<b>Construction</b>		
Mobile Chipper	\$985,000	100%
Front End Loader	\$300,000	100%
Log Loader	\$250,000	100%
Chip Screening System	\$150,000	100%

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**Comment Author** Gentry, Don  
**Agency/Assoc.** The Klamath Tribes  
**Submittal Date** December 30, 2011

<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_LT_1230_097-1	Master Response GEN-2 Some People Approve of Dam Removal, Others Oppose Dam Removal.	No
IT_LT_1230_097-2	<p>It is unclear which sections of the EIS/EIR the comment author is referring to. Discussion on historic use of fish in Chapter 1 for example, describes the Tribe's reliance on "the fish populations of the Klamath Basin". On p. 1-4, the Draft EIS/EIR acknowledges that construction of the four main-stem hydroelectric facilities on the middle part of the Klamath Basin between 1918 (Copco 1 Dam) and 1962 (Iron Gate Dam) blocked the passage of migrating salmon and steelhead to the Upper Basin. On p. 1-6 the Draft EIS/EIR documents that the "Klamath River is blocked at Iron Gate Dam for passage of fall and spring run Chinook salmon, coho salmon, and steelhead, limiting fish production in the basin and access to salmon by tribes in the Upper Basin." In the first paragraph under Section 1.1.3.4., p. 1-8, the Draft EIS/EIR states "The Klamath Basin once produced large runs of steelhead, Chinook salmon, coho salmon, green sturgeon, eulachon, coastal cutthroat trout, and Pacific lamprey. Runs of these anadromous fish (fish that migrate from salt water to spawn in fresh water) contributed substantially to tribal, commercial, and recreational fisheries (USFWS 1986; Klamath River Basin Fisheries Task Force 1991; Gresh et al. 2000)."</p> <p>Butler et al. (2010) is cited in the Aquatic Resources section of the Draft EIS/EIR on p. 3.3-8 as evidence that steelhead were present in the Upper Klamath Basin upstream of Upper Klamath Lake.</p> <p>The first sentence on p. 3.12-6 in the Tribal Resources section of the Draft EIS/EIR states "Historically, The Klamath Tribes fished not only for salmon and steelhead, but also for mullet, suckers, trout, sturgeon, eels, and lamprey." Another reference to the use of steelhead may be found on p. 3.12-9 which states "Among the anadromous fish The Klamath Tribes used as staple foods are fall and spring Chinook salmon, steelhead, Pacific lamprey, and possibly coho and sockeye salmon."</p> <p>Analysis of the potential impacts and benefits to steelhead under each alternative is contained in Section 3.3 of the EIS/EIR.</p>	No
IT_LT_1230_097-3	As noted in responses to comments from this comment author above, reference to this conclusion by the Chinook Expert Panel has been added to the EIS/EIR.	Yes
IT_LT_1230_097-4	It is unclear which sections of the EIS/EIR the comment author is referring to, however Section 3.3.3.1 does note that "steelhead historically used habitat upstream of Upper Klamath Lake prior to the Construction of Copco 1 Dam."	No

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**Agency/Assoc.** The Klamath Tribes  
**Submittal Date** December 30, 2011

<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
IT_LT_1230_097-5	The following sentences have been added to Section 2.4.1.2: “According to Lane and Lane Associates (1981), Copco 1 was built with the intention that a fishway would be constructed as a mitigation measure for salmon. However, by the completion of Copco 1, the idea of fishway passage had been abandoned because of its impracticality, and a hatchery was planned in lieu of fish passage.”	Yes
IT_LT_1230_097-6	It is unclear which section of the EIS/EIR the comment author is referring to; there is no Section 2.1.1.3 in the Draft EIS/EIR.	No
IT_LT_1230_097-7	Suggested text has been added to Section 3.12.3.1.	Yes
IT_LT_1230_097-8	Unfortunately, it is unclear which section of the EIS/EIR the comment author is referring to; there is no Section 2.1.2.1 in the Draft EIS/EIR.	No
IT_LT_1230_097-9	It is unclear which section of the EIS/EIR the comment author is referring to; there is no Section 2.1.2.1 in the Draft EIS/EIR.	No
IT_LT_1230_097-10	It is unclear which section of the EIS/EIR the comment author is referring to there is no Section 2.1.2.1.1 in the Draft EIS/EIR. The term mullet is used in Section 3.12 and we assume that the author is referring to the use of mullet and suckers in this section of the Draft EIS/EIR. The distinction is noted and appreciated.	No
IT_LT_1230_097-11	It is unclear which section of the EIS/EIR the comment author is referring to Section 3.1.1.1 of the Draft EIS/EIR does not refer to “cutthroat”. In our search of the document we have found that “cutthroat” is described as being present in the upper basin (upstream of Iron Gate) in Section 3.12 and in Section 3.20.  We have revised the EIS/EIR to eliminate any reference to cutthroat trout being present in the Upper Klamath Basin.	Yes
IT_LT_1230_097-12	It is not clear as to what section this comment refers to in the Draft EIS/EIR. Chapter 2 states that the Oregon Phase I Reintroduction Plan, is to be prepared by the ODFW and the Klamath Tribes and that ODFW, the Klamath Tribes, and other Fish Managers would be responsible for implementation of the Phase I Reintroduction Plan.	No
IT_LT_1230_097-13	The KBRA is being treated as The active reintroduction of Chinook Salmon into Upper Klamath Lake and its Tributaries as a component of the Fisheries Reintroduction and Management Plan was analyzed in the Draft EIS/EIR at the programmatic level.	No
IT_LT_1230_097-14	As noted in Chapter 2, the restoration actions described by the comment author would not be completed under the No Action/No	No

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<b>Comment Code</b>	<b>Comment Response</b>	<b>Change in EIS/EIR</b>
	Project Alternative. The page number provided by the comment author relative to this comment appears to refer to bull trout critical habitat effects under the No Action/No Project Alternative presented in Section 3.3, Aquatic Resources. Analysis of the effects to this habitat relative to the Proposed Action are presented on p. 3.3-111 of the Draft EIS/EIR.	
IT_LT_1230_097-15	The only reference to canneries provided in the Draft EIS/EIR appear on p. 3.12-37, 3.15-45, and 3.16-19. It is unclear which reference the comment author is requesting be deleted.	No
IT_LT_1230_097-16	The Draft EIS/EIR did not include an Attachment 7. It is unclear what table in the EIS/EIR the comment author is referring to.	No
	We are aware of the response to comment #190 in the Final Chinook Salmon Expert Panel Report Addendum made by the Chinook Salmon Expert Panel. The Expert Panel Reports are addressed in the EIS/EIR Section 3.3.4.3 Effects Determinations, Alternative 2 (and 3), Aquatic Resources Effects, Species Specific Impacts for coho, steelhead and Chinook salmon respectively.	
	Master Response AQU-6B Expert Panel Coho, Steelhead and Chinook.	
	Master Response AQU-30 BRT Current Status of Chinook Fisheries.	
	Text has been added to the EIS/EIR in Section 3.3.3 summarizing the findings of the Biological Review Team.	
IT_LT_1230_097-17	This sentence was changed to address other comments; this text change is no longer applicable.	No
IT_LT_1230_097-18	Sentence added to clarify.	Yes
IT_LT_1230_097-19	Additional text has been added in the KBRA impact analysis to describe tribal water right issues.	Yes
IT_LT_1230_097-20	Section 3.8.2.1, Federal Water Law, has been revised to include language on 43 U.S.C. 666, the McCarran Amendment.	Yes
IT_LT_1230_097-21	This sentence has been deleted to alleviate confusion.	Yes
IT_LT_1230_097-22	The evaluation of the No Action/No Project in Section 3.8 has been clarified with the following statement "The No Action/No Project Alternative does not include any action to change water supplies from existing adverse conditions." Though these conditions have been on-going for many years prior to the Notice	Yes

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Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_097-23	of Intent for this EIS/EIR, this clarification has been made to acknowledge the current adverse conditions.  It is not clear as to what section this comment refers to in the Draft EIS/EIR. Chapter 2 describes the KBRA, including the various programs. Text has been added to Section 3.8 to reflect the management flexibility allowed by the KBRA.	Yes
IT_LT_1230_097-24	Many of the elements of the KBRA are still subject to the future development of plans and implementation strategies. Recognizing that implementation of many elements of the KBRA is unknown and not reasonably foreseeable at this time, the connected action analysis is being undertaken at a programmatic level. The KBRA analysis in this EIS/EIR is programmatic, as described in Section 15168 of the CEQA Guidelines. A program-level document is appropriate when a project consists of a series of smaller projects or phases that may be implemented separately. Under the programmatic EIR approach, future projects or phases may require additional, project-specific environmental analysis including an evaluation of compliance with Federal laws such as the Clean Water Act and the Endangered Species Act. Consequently, appropriate NEPA compliance would be completed for the separate KBRA components in the future. Therefore, it is anticipated additional NEPA and CEQA analyses for the suite of actions contained in KBRA would be tiered as appropriate to this EIS/EIR.  Change has been made to p. ES-40 of the Draft EIS/EIR.	Yes
IT_LT_1230_097-25	The discussion that Alternative 4 and 5 do not meet all the CEQA objectives is included in the description of alternatives in Section ES.6. Section ES.7.2 discusses the environmental impacts and benefits of each of the alternatives.	No
IT_LT_1230_097-26	Change made in the Executive Summary under Alternatives 2 and 3 in Section ES.7.2.	Yes
IT_LT_1230_097-27	As discussed in the EIS/EIR, DOI will identify an environmentally preferred alternative in the Record of Decision. Per CEQA regulations, CDFG has identified an environmentally superior alternative in the EIS/EIR. The discussion of the environmentally superior alternative in the EIS/EIR is for the purposes of CEQA for CDFG.	No
IT_LT_1230_097-28	The comment author is correct that water quantity should be included as essential to safeguard a fishery. This correction has been made to Section 3.12.	Yes

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**Agency/Assoc.** The Klamath Tribes  
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	<p>Indian trust resources are property or legal interests that the United States has a legal obligation to manage for the benefit of one or more federally recognized Indian tribes or individual Indians. Trust resources and rights cannot be sold, leased, or otherwise encumbered without approval of the United States.</p> <p>To capture the fact that tribes use many resources the U.S. Government does not consider a trust resource we have included a description of Resources Traditionally Used by Tribes. Resources Traditionally Used by Tribes are those that are related to tribal cultural values associated with a tribal way of life that may not meet the definition of a trust resource, but which may or may not be entitled to legal protection under statute, regulation, or other law or regulation</p> <p>Section 3.12 has been revised to better define the differences between trust resources and resources traditionally used by tribes.</p>	
IT_LT_1230_097-29	The suggested correction has been made in Section 3.12.	Yes
IT_LT_1230_097-30	Suggested changes have been made in Section 3.12, Tribal Trust Assets.	Yes
IT_LT_1230_097-31	Suggested changes have been made in Section 3.12, Tribal Trust Assets.	Yes
IT_LT_1230_097-32	Suggested changes have been made in Section 3.12, Tribal Trust Assets.	Yes
IT_LT_1230_097-33	Master Response TTA-5 Presentation of Effects.	No
IT_LT_1230_097-34	Master Response TTA-5 Presentation of Effects.	No
IT_LT_1230_097-35	Master Response GEN-9 Beneficial Effects.	No
IT_LT_1230_097-36	Master Response GEN-9 Beneficial Effects.	No
IT_LT_1230_097-37	<p>The section clearly states adverse impacts related to dams. Information about tribal history and environmental justice issues in the area of analysis was derived from the U.S. Department of Interior's (DOI) Effects of PacifiCorp Dams on Indian Trust Resources and Cultural Values in the Klamath Basin: Background Technical Report also referred to as Background Technical Report Informing the Secretarial Determination Overview Report: Current Effects of Implementing the KHSA and KBRA on Indian Trust Resources and Cultural Values (DOI 2012a).</p> <p>A reference to the Sociocultural/Socioeconomics Effects Analysis Technical Reports was added to the introductory text of EIS/EIR</p>	Yes

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Comment Code	Comment Response	Change in EIS/EIR
	Section 3.16 on Environmental Justice.	
IT_LT_1230_097-38	Suggested changes have been made in Section 3.16, Environmental Justice.	Yes
IT_LT_1230_097-39	Suggested changes have been made in Section 3.16, Environmental Justice.	Yes
IT_LT_1230_097-40	Text in Section 3.16, Environmental Justice, has been revised.	Yes
IT_LT_1230_097-41	The section clearly states adverse impacts related to dams. Information about tribal history and environmental justice issues in the area of analysis was derived from the U.S. Department of Interior's (DOI) Effects of PacifiCorp Dams on Indian Trust Resources and Cultural Values in the Klamath Basin: Background Technical Report also referred to as Background Technical Report Informing the Secretarial Determination Overview Report: Current Effects of Implementing the KHSA and KBRA on Indian Trust Resources and Cultural Values (DOI 2012a).  A reference to the Socioeconomics Effects Analysis Technical Reports was added to the introductory text of EIS/EIR Section 3.16, Environmental Justice.	Yes
IT_LT_1230_097-42	Suggested changes have been made in Section 3.16, Environmental Justice.	Yes
IT_LT_1230_097-43	Suggested changes have been made in Section 3.16, Environmental Justice.	Yes
IT_LT_1230_097-44	Text has been revised in Section 3.16, Environmental Justice, to distinguish adverse impacts.	Yes
IT_LT_1230_097-45	Master Response TTA-5 Presentation of Effects.	No
IT_LT_1230_097-46	Master Response TTA-5 Presentation of Effects.	No
IT_LT_1230_097-47	The term <i>Disproportionate</i> comes from Executive Order (EO) 12898 that requires Federal agencies to identify and address disproportionate effects of its programs, policies, and activities.  E.O. 12898 states:  To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, <b>disproportionately</b> high and adverse human health or environmental effects of its programs, policies,	Yes

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	and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.	
IT_LT_1230_097-48	The section states that “the core of the KBRA is to provide water reliability to farmers, which would ensure continuation of agricultural jobs in the area of analysis. In the long term, the KBRA has the potential to offset the loss of agricultural jobs and would not result in a long term environmental justice issue for farm workers.” This would not be an adverse, disproportionate effect.	No
IT_LT_1230_097-49	The requested citation has been added to the EIS/EIS.	Yes
IT_LT_1230_097-50	The EIS/EIS has been revised to address the comment.	Yes
IT_LT_1230_097-51	Text revised to clarify that “the river may be used as refuge from water quality impacts during implementation of the Proposed Action.”	Yes
IT_LT_1230_097-52	Section 3.3, Aquatic Resources utilizes the analysis and conclusions from Dunsmoor and Huntington (2006) in numerous locations. However as noted on p. 3.3-49 of the Draft EIS/EIR, no individual existing numeric model captures all of the long-term water quality conditions anticipated under the Proposed Action and the alternatives. Modeling conducted for the California Klamath River TMDLs provides long-term quantitative predictions for multiple water quality parameters in the Klamath River, assuming full implementation of TMDLs (except for water temperature), which is considered to be a reasonably foreseeable future action under NEPA. Other numeric models used for the long-term water quality analyses presented in the Draft EIS/EIR include the Klamath River Water Quality Model (KRWQM) developed by PacifiCorp for the Federal Energy Regulatory Commission relicensing process and the RBM10 water temperature model developed as part of the Secretarial Determination studies. These models are described in Section 3.2.4.1 (p. 3.2-33 to 3.2-42) and Appendix D of the Draft EIS/EIR. Results of water temperature modeling with respect to fish health conducted by Dunsmoor and Huntington (2006) (using the KRWQM results) are also cited numerous times in the water quality and aquatic resources analysis (Sections 3.2.4 and 3.3.4). As stated in Section 3.2.4.1.1 (p. 3.2-36, with respect to water temperature), “since no one existing model captures all of the elements analyzed for water temperature in this Klamath Facilities Removal EIS/EIR, where possible, model outputs are used in combination to assess similar spatial and temporal trends in predicted water temperature.” The same is true for the dissolved oxygen analysis (Section 3.2.4.1.4, p. 3.2-38 to 3.2-39) and for	No

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	<p>nutrients (Section 3.2.4.1.3, p. 3.2-37 to 3.2-38), where the latter primarily uses the results of an empirical analysis conducted by Asarian et al. (2010) rather than the TMDL model nutrient results (the TMDL model results are only used to assess general trends). Further, as presented in Section 3.2.4.3 Effects Determinations (p. 3.2-47 to 3.2-147), the Klamath River TMDL model results generally agree with the results of other numeric modeling efforts conducted in the Klamath Basin and cited in the Draft EIS/EIR. Note that for the long-term dissolved oxygen analysis called out in this comment, the KRWQM results with respect to dissolved oxygen immediately downstream from Iron Gate Dam are presented along with the TMDL model results in Section 3.2.4.3.2.4 (p. 3.2-109 to 3.2-11).</p>	
IT_LT_1230_097-53	<p>Reference to Expert Panel conclusion on Chinook salmon has been added.</p> <p>Master Response AQU – 30 BRT Current Status of Chinook Fisheries.</p> <p>The findings of the Biological Review Team have also been added to the EIS/EIR in Section 3.3.</p>	Yes
IT_LT_1230_097-54	The EIS/EIS has been revised to address the comment.	Yes
IT_LT_1230_097-55	The EIS/EIS has been revised to address the comment	Yes
IT_LT_1230_097-56	<p>The page that the comment author is requesting the inclusion of this language describes the effects of the Proposed Action on Fall-Run Chinook Salmon. The language that the comment author is noting describes the effects of the No Action/No Project Alternative. This language was added to the No Action/No Project Alternative analysis as noted in response to the comment author's previous comment.</p>	No
IT_LT_1230_097-57	The EIS/EIS has been revised to address the comment.	Yes
IT_LT_1230_097-58	The EIS/EIS has been revised to address the comment.	Yes
IT_LT_1230_097-59	The EIS/EIS has been revised to address the comment	Yes
IT_LT_1230_097-60	The EIS/EIS has been revised to address the comment.	Yes
IT_LT_1230_097-61	The EIS/EIS has been revised to address the comment.	Yes
IT_LT_1230_097-62	<p>Section 18 of the KBRA describes these additional water storage projects. Before the water diversion limitations to Reclamation's Klamath Project may be made permanent, these Upper Klamath Lake projects must be designed and studied through a NEPA</p>	No

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IT_LT_1230_097-63	<p>process that would include compliance with the Endangered Species Act (ESA). However, since these studies are not yet complete, the KBRA is analyzed in this EIS/EIR programmatically and the KBRA does not supersede existing laws or regulations.</p> <p>In the Final EIS/EIR, discussion of diel temperature variation has been repeated in Section 3.2.4.3.1.1 (No Action/No Project Alternative) Lower Klamath Basin; this discussion was already present in Draft EIS/EIR Section 3.2.4.3.2.1 (Proposed Action) Lower Klamath Basin. In the EIS/EIR, much of the discussion of diel water temperature variation downstream from the dams is presented as part of the analysis of the Proposed Action, whereby dam removal would increase diel variability. For example, the Draft EIS/EIR addresses increased water temperature variability under the Proposed Action in multiple locations. Section 3.2.4.3.2.1 Water Temperature addresses increased daily fluctuations in water temperature under the Proposed Action in the J.C. Boyle bypass reach (p. 3.2-76 to 3.2-77), in the Klamath River downstream of Copco I Reservoir (p. 3.2-77 to 3.2-79), and in the Klamath River downstream from Iron Gate Dam (p. 3.2-80 to 3.2-83). Figures 3.2-3 and 3.2-5 clearly present the anticipated changes in daily water temperature fluctuations under the Proposed Action for the Klamath River at the California-Oregon stateline and downstream from Iron Gate Dam. Further, the impact statement for the Klamath River downstream from J.C. Boyle Dam explicitly calls out effects on water quality due to anticipated increases/decreases in daily water temperature fluctuations (p. 3.2-77).</p> <p>However, to better present the effects of water temperature variation on aquatic species in the Klamath River, the Draft EIS/EIR has been revised in Section 3.3.4.3 (p. 3.3-88) to include additional explanation of diel temperature variation under the Proposed Action (see also Master Response AQU-31. Thermal Lag and Diel Temperature).</p> <p>Additionally, the Draft EIS/EIR impact statements for the Klamath River downstream from Copco I Reservoir and downstream from Iron Gate Dam focus on the seasonal shift in water temperatures. These impact statements have been revised for the Final EIS/EIR to include explicit statements about increased diel temperature variation, which are supported by the analysis already provided in the Draft EIS/EIR (to be consistent with terminology used in Section 3.3, references to “daily water temperature variability” or “daily water temperature fluctuations” in Section 3.2 have been changed to “diel temperature variation”, which means water temperature variability in a 24-hour period).</p>	Yes

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Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_097-64	<p>Flow diversions at Copco 2 are addressed in Reclamation's Klamath Project description and the EIS/EIR aquatics analysis. At Copco 2 Dam, flow is diverted on river left through a water intake structure and conveyed through the power generation system. River flow in excess of diverted water is allowed to flow over the concrete spillway. An existing metal flume through the dam provides an additional 5 cubic feet per second (cfs) to the bypass reach below the dam (Public Draft EIS/EIR Section 2.4.1.3, p. 2-11).</p> <p>Additionally, as described as part of existing physical habitat conditions, the 1.5 mile long Copco 2 bypass reach has flows of about 5 cfs provided below Copco 2 Dam. This riverine reach historically provided complex habitat suitable for salmonid spawning and rearing (Section 3.3.3.2, p. 3.3-26). Access to the Copco 2 bypass reach is inherently included in Alternatives 2 and 3 since all habitat upstream of Iron Gate Dam in the Klamath River Hydroelectric Reach would be accessible to aquatic species should the dams be removed. Fish access to habitat in the Copco 2 bypass reach is also addressed under Alternative 4 (p. 3.3-148 to 3.3-171) and Alternative 5 (p. 3.3-172 to 3.3-195).</p>	No
IT_LT_1230_097-65	<p>This has been added to Table 4-3, p. 4-14 of the Draft EIS/EIR. Text has also been added to anadromous fish impact discussions.</p>	Yes
IT_LT_1230_097-66	<p>This has been added to Table 4-3, p. 4-17 of the Draft EIS/EIR. Text has also been added to anadromous fish impact discussions.</p>	Yes
IT_LT_1230_097-67	<p>P. 4-29 under Section 4.4.1 states that the Klamath Hydroelectric Project has contributed to cumulative adverse water quality effects. Additionally, the various water quality cumulative effects paragraphs discuss how water quality has been affected in the Hydroelectric Reach by the presence of the dams. The cumulative effects for aquatic resources (Section 4.4.2) generally describes how the four hydroelectric dams have blocked access to habitat and altered flow and water quality for aquatic species. The comment does not describe any additional impacts that have occurred from the presence of Copco 2 Dam; therefore no other changes have been made.</p> <p>Flow diversions at Copco 2 are addressed in Reclamation's Klamath Project description and the EIS/EIR aquatics analysis. At Copco 2 Dam, flow is diverted on river left through a water intake structure and conveyed through the power generation system. River flow in excess of diverted water is allowed to flow over the concrete spillway. An existing metal flume through the dam provides an additional 5 cubic feet per second (cfs) to the bypass reach below the dam (Public Draft EIS/EIR Section 2.4.1.3, p. 2-11).</p>	No

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**Agency/Assoc.** The Klamath Tribes  
**Submittal Date** December 30, 2011

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	<p>Additionally, as described as part of existing physical habitat conditions for Aquatic Resources, the 1.5 mile long Copco 2 bypass reach has flows of about 5 cfs provided below Copco 2 Dam. This riverine reach provides complex habitat suitable for salmonid spawning and rearing (Section 3.3.3.2, p. 3.3-26). Access to the Copco 2 bypass reach is inherently included in Alternatives 2 and 3 since all habitat upstream of Iron Gate Dam in the Klamath River Hydroelectric Reach would be accessible to aquatic species should the dams be removed. Fish access to habitat in the Copco 2 bypass reach is also addressed under Alternative 4 (p. 3.3-148 to 3.3-171) and Alternative 5 (p. 3.3-172 to 3.3-195).</p>	
IT_LT_1230_097-68	<p>This section has been revised in accordance with changes made to Section 3.2 Water Quality.</p>	Yes
IT_LT_1230_097-69	<p>Section 4.4.1.1 describes the cumulative water quality effects by first briefly stating the impacts described in Section 3.2, Water Quality, and then considering how these would combine with other actions/programs to contribute to cumulative water quality effects. Please see Section 3.2 Water Quality for discussion and references to Dunsmoor and Huntington (2006).</p> <p>Section 3.2 Water Quality has been updated to reflect changes in the temperature discussion for below Iron Gate Dam and now states these changes would be less than significant. The Cumulative Effects section has been revised in accordance with these changes, and states the temperature changes would not be cumulatively considerable.</p>	Yes
IT_LT_1230_097-70	<p>Flow diversions at Copco 2 are addressed in Reclamation's Klamath Project description and the EIS/EIR aquatics analysis. At Copco 2 Dam, flow is diverted on river left through a water intake structure and conveyed through the power generation system. River flow in excess of diverted water is allowed to flow over the concrete spillway. An existing metal flume through the dam provides an additional 5 cubic feet per second (cfs) to the bypass reach below the dam (Public Draft EIS/EIR Section 2.4.1.3, p. 2-11).</p> <p>Additionally, as described as part of existing physical habitat conditions, the 1.5 mile long Copco 2 bypass reach has flows of about 5 cfs provided below Copco 2 Dam. This riverine reach historically provided complex habitat suitable for salmonid spawning and rearing (Section 3.3.3.2, p. 3.3-26). Access to the Copco 2 bypass reach is inherently included in Alternatives 2 and 3 since all habitat upstream of Iron Gate Dam in the Klamath River Hydroelectric Reach would be accessible to aquatic species should the dams be removed. Fish access to habitat in the</p>	No

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Copco 2 bypass reach is also addressed under Alternative 4 (p. 3.3-148 to 3.3-171) and Alternative 5 (p. 3.3-172 to 3.3-195).