11.6 Indian Tribes

IT_MC_1027_052

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

MR. BELCHIK: Hi. My name is Michael Belchik, spelled M-i-c-h-a-e-l B-e-l-c-h-i-k. I'm a senior fisheries biologist for the Yurok Tribe. I've been working here for 16 and a half years now. My primary duties, during this time, has been working on water flows in the Klamath and Trinity Rivers and Klamath dam removal.

And I've been working on dam removal since -- well, the Yurok Tribe and the Karuk Tribe were the first ones to start talking about it, and we were literally laughed out of the room at first. So, it is gratifying to see us here at this stage, where we're beginning to give it some really serious thought.

I thought, last night, that the gentleman from Humboldt County, Hank Seemann, made a really interesting point, in that this is the mitigation project, the entire project. The very purpose of this project is to improve the fisheries of the Klamath River.

Yesterday, at noon, they blew a giant hole in the bottom of Condit Dam, and the lake drained in about an hour. This was a PacifiCorp dam. This was reached -- the dam removal agreement was reached almost in the same manner as this dam. It gives us hope that -- at least some faith that PacifiCorp will follow through on their commitments.

And with that, I would like to talk a little bit about some of the issues in the EIS. First of all, one of the things that the Fisheries Benefit Summary didn't make a big deal about, or I think really needs to be emphasized more, is the resurrection of the now extinct spring run that's above the Salmon River. What we're looking at doing here is a tremendous goal of bringing back a lost run of fish that will greatly benefit the spring Chinook in here.

Another issue is that we talked about access to what they call thermal refugia. I think it's much larger than that. Taking the dams down is going to give the fish access to stable sources of cool groundwater, very large volumes of cool groundwater, capable of holding fish, like, an entire spring run.

Comment 1 - Fish

Comment 2 - Approves of Dam Removal

This is a very vital thing to happen in the face of climate change. We're going to be facing issues with loss of snowpack. I think it's very important for the long-term health of the Chinook salmon to get them access to the Upper Basin, and dam removal is, by far, the best alternative to that. And I have taken a close look at the other alternatives, such as fish passage.

I think it's important to note, with respect to the KBRA, that, currently, the flows are managed by the Endangered Species Act. This means that they're managed for Coho only, which I don't believe is acceptable, but it is the current status quo. That protection, the ESA backstop, is left in place. Under the KBRA, it will not go away.

So, we commonly hear that there are guarantees of water for farmers. That simply is not true. It will be the same status that it is right now.

The KBRA, the model runs, the best available information shows that the KBRA -- the flows will protect the river from fish kill flows. If this is not the case, I would not have recommended it to the Tribal Council. It has to work for fish. And I believe it does.

We know that this Agreement is not complete. For example, it does not address major and important issues in the Shasta and Scott River. There's still a lot of work to do. It doesn't address every water quality issue in the Upper Klamath Basin. There is still other work to do on that, too.

And with that, I conclude my comments.

Thank you.

Comment Author	Belchik, Michael
Agency/Assoc.	Yurok Tribe
Submittal Date	October 27, 2011

Comment Code	Comment Response	Change in EIS/EIR
IT_MC_1027_052-1	**Background:** As noted in the Environmental Impact Statement /Environmental Impact Report (EIS/EIR) on p. 3.3-7, historically, the spring-run Chinook salmon may have been as abundant as the fall run (Moyle 2002). Large numbers of Chinook salmon once spawned in the basin above Klamath Lake in the Williamson, Sprague, and Wood rivers (Snyder 1931, as cited in National Research Council 2004). Large runs of spring Chinook salmon also returned to the Shasta, Scott, and Salmon rivers. In Section 3.3 the following text has been added: **Cause of the Decline:** • Huntington (Huntington 2006) reasoned that spring-run Chinook likely accounted for the majority of the upper basin's actual salmon production under pristine conditions, but were apparently in substantial decline by the early 1900s. The cause of the decline of the Klamath River spring-run Chinook salmon prior to Copco 1 Dam has been attributed to dams, overfishing, irrigation, and largely to commercial hydraulic mining operations (Coots 1962; Snyder 1931). These large scale mining operations occurred primarily in the late 1800's, and along with overfishing, left spring Chinook little chance to recover prior to dam construction in early 1900's (p. 3.3-7). • Dam construction eliminated much of the historical spring-run spawning and rearing habitat and was partly responsible for the extirpation of at least seven spring-run populations from the Klamath-Trinity River system (Myers et al. 1997). The construction of Dwinnell Dam on the Shasta River in 1926 was soon followed by the disappearance of the spring Chinook salmon run in that tributary (Moyle et al. 1995 in National Research Council 2004) (p. 3.3-7). • Under this Alternative, spring-run Chinook salmon are likely to remaining at significantly suppressed levels over the years of analysis (50 years) (added to end of 2nd paragraph under spring Chinook on p. 3.3-63, Alternative 1). As noted in the EIS/EIR on p. 3.3-63 and 3.3-64, the consequences of this ongoing loss of habitat to the population could include reduced resilience to recover from catastrophic disturbances of natural or anthropogenic origin, such as wildfire or chemical spills. Because areas upstream of the barrier include coldwater refugia, opportunities for the population to adapt to changing climate are reduced, whether these changes are a result of short- or long-term cycles or trends. Overall, spring Chinook salmon mostly use the mainstem Klamath River as a migratory corridor during adult migration, and downstream smolt migration.	Yes

Comment Author	Belchik, Michael
Agency/Assoc.	Yurok Tribe
Submittal Date	October 27, 2011

Comment Code	Comment Response	Change in EIS/EIR
	Access to Additional Habitat: The EIS/EIR (Chapter 3.3.4.3) states access to additional habitat would provide a long-term benefit to spring-run Chinook salmon populations. <u>Alternatives 2 and 3</u> (p. 3.3-101) have been revised to integrate the following**:** • A) Successful passage would provide access to important thermal refugia, most notably in the J.C. Boyle Bypassed Reach and in tributaries upstream of Upper Klamath Lake (Federal Energy Regulatory Commission [FERC] 2007). Dam removal would make habitat accessible to both spring-run and fall-run Chinook salmon above Iron Gate Dam (IGD) (FERC 2007). Removing the dams would allow access to at least 49 tributaries upstream of Iron Gate Dam that would provide hundreds of miles of habitat for Chinook salmon (U.S. Department of the Interior [DOI] 2007), including groundwater-fed areas resistant to water temperature increases caused by changes in climate (Hamilton et al. 2011). Some of these areas, such as the lower Williamson River, have habitat that would provide substantial holding areas for spring Chinook (Hamilton et al. 2010). Other holding areas with suitable temperatures above the Project include Big Springs in the J.C. Boyle Bypassed Reach (DOI, Bureau of Land Management [BLM] 2003), groundwater influenced areas on the west side of UKL (Gannett et al. 2007), and the Wood River (Gannett et al. 2007), Providing an unimpeded migration corridor, the Proposed Action would provide the greatest possible benefit related to fish passage, hence, the highest survival (Buchanan et al. 2011a) and reproductive success. It is anticipated that as a result of the Proposed Action the spring-run Chinook salmon population within the Klamath River watershed would have an increase in abundance, productivity, population spatial structure, and genetic diversity. • B) The Draft EIS/EIR (chapter 3.3.4.3.) presents information from the Chinook Salmon Expert Panel Report (Goodman et al. 2011). The report noted uncertainties based on existing data and concluded the prospects for the Proposed Action to provide a substantial positive effect for spring Chinook salmon is more remote than for fall-run Chinook salmon. The primary concern of the panel was that low abundance and productivity (return per spawner) of spring Chinook salmon would limit recolonization of habitats upstream of Iron Gate Dam. However, this concern would be addressed in that the Klamath Basin Restoration Agreement (KBRA) includes a	

Comment Author	Belchik, Michael
Agency/Assoc.	Yurok Tribe
Submittal Date	October 27, 2011

Comment Code	Comment Response	Change in EIS/EIR
	reintroduction component to establish populations in the new habitats. Above Upper Klammath Lake (UKL), KBRA implementation would reintroduce Chinook salmon in Phase 1 (KBRA Section 11.3.1.A) – no sooner than one year after the KBRA Effective Date. The adaptive management approach to reintroduction will include spring Chinook as well as fall Chinook (Oregon Department of Fish and Wildlife [ODFW] 2008). Even without supplementation, it is likely that Chinook salmon recolonization would occur as it did following barrier removal at Landsburg Dam in Washington (Kiffney et al. 2008). In addition, KBRA actions would be implemented that are anticipated to improve productivity of existing and potentially newly accessible habitats. • C) Historically, adult spring-run Chinook salmon migrated upstream of the current location of IGD, perhaps as early as February and March (Klamath Republican articles in Fortune et al. 1966) and likely held over in large holding pools in the mainstem, in tributaries fed by cool water, and in headwater habitat above UKL (California Department of Fish and Game [CDFG] 1990; Moyle 2002; Snyder 1931). One benefit of such early migration would be the avoidance of periods of poor water quality. The restored water temperature regime may change upstream migration timing of adult spring-run Chinook salmon because of the shift in water temperatures below IGD (Bartholow et al. 2005). • D) With large scale hydraulic mining operations now outlawed, spring-run Chinook salmon would no longer be subject to one of their most significant threats in the Klamath River as discussed above. Current improved fisheries management minimizes overharvest. • E) While access to the upper basin provides considerable promise of increasing spring-run abundance, Huntington (2006) cautioned that the existing potential for Chinook salmon production within the basin above UKL is clearly much lower than his estimate of historical potential. His approach, however, did not fully account for the historical (and unknown) production potential of UKL itself, which could have been considerable. A recent experimental reintroduction into UKL suggests that habitat here would continue to support Chinook salmon (Maule et al. 2009). • F) To strengthen resiliency in salmon populations, habitat opportunities need to be expanded to allow maximum expression of life-history variation. Restoration of migration to	

Comment Author	Belchik, Michael
Agency/Assoc.	Yurok Tribe
Submittal Date	October 27, 2011

Comment Code	Comment Response	Change in EIS/EIR
	habitat above Iron Gate Dam, in particular Upper Klamath tributaries with important groundwater resources, will be conducive to variation of life-histories, including spring Chinook, and population resilience (Hamilton et al. 2011). Alternative 4 (p. 3.3-157) and Alternative 5 (p. 3.3-181) have been revised to integrate A, C, D, E, and F above either by reference or the addition of the text. As noted in the EIS/EIR in Section 3.3-15, spring Chinook salmon are highly desirable and would provide quality benefits to the subsistence fishery and lengthen the duration of harvest. Restoration of spring Chinook is of particular importance for Tribes, as it could lead to revival of the traditional First Salmon Ceremony.	
IT_MC_1027_052-2	Master Response GEN-2 Some People Support Dam Removal and Others Oppose Dam Removal.	No

IT_MC_1026_062

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

Partial Duplicate of

MR. BELCHIK: Hi. My name is Michael Belchik. That's spelled M-i-c-h-a-e-l B-e-l-c-h-i-k. I'm a fisheries -- senior fisheries biologist for the Yurok Tribe. What I work on is Klamath dam removal, that's all -- mostly what I've done for about the last ten years. When I started, nobody was talking about dam removal, and it's somewhat gratifying to see a turnout like this where it's all about dam removal.

Duplicate of IT_MC_1027_052

I want to talk a little bit about the science behind the dam removal. First of all, in the Fisheries Benefit Summary in the document, I think one thing that's really big here is that one of our goals is to resurrect a now extinct run of spring run Chinook, which is the Upper Klamath spring run Chinook. We believe, given the fisheries information that's developed, that this is going to happen if the dams come out under Alternatives 2 or 3. I think that needs to be emphasized.

Another thing that was mentioned, but I don't think quite in the right way, it says that fish will have access to thermal refugia areas. I think it's quite a bit more significant than that. What we're talking about is getting fish to stable areas of cold water in the face of the loss of significant snow pack and temperature increases due to climate change. We think that this is a necessary step for -- to ensure the long-term survival of the salmon in the Klamath River and that that needs to be stated that way.

Comment 1 - Hydrology

Another thing is that there is some controversy about the science, so one of my roles was to take a look at the science about the flows, about the results of theirs. It's not simple. It's not easy to tell exactly what would happen if we did this or didn't do that. But I can say that the ESA protections, which currently protect flows on the river, which are about the only thing that protect flows, will still be left in place. I think that needs to be emphasized in the document. So, the ESA protections that currently protect flows, they will still protect flows. It says that in the KBRA, something on the order of 15 different places and times on there.

Comment 1 cont.

The KBRA also protects the Klamath River from flows which caused the Klamath River fish kill. We believe that implementation of the KBRA will be a significant step in the prevention from that disaster ever happening again.

And then, finally, I just want to acknowledge that the KBRA, while it does attempt to address comprehensive and large scale, landscape scale, ecological issues on the Klamath, which is what I believe needed to be done, it's not complete. It doesn't address significant issues in some of the tributaries, such as the Shasta and Scott, and there still is more work to be done, not just in those areas but other areas.

Thank you very much.

Comment 2 - Out of Scope

Comment Author	Belchik, Michael
Agency/Assoc.	Yurok Tribe
Submittal Date	October 26, 2011

Portions of this letter are verbatim duplicates of comments submitted in the comment author's submittal coded - IT_MC_1027_052. Responses to those initial comments that were duplicated in this letter are presented in this EIS/EIR alongside IT_MC_1027_052. Responses to comments provided in this letter that were not also submitted as a part of IT_MC_1027_052 are listed below.

Comment Code	Comment Response	Change in EIS/EIR
IT_MC_1026_062-1	Master Response HYDG-1 Flood Protection. Master Response WSWR-4 Summary of Effects to Water Rights/Water Supply for Alternatives 2 and Alternative 3 for Municipal, Agricultural, and Tribal Use.	No
IT_MC_1026_062-2	Master Response GEN-1 Comment Included as Part of Record.	No

IT_WI_1113_079

From: dboomgarden@yahoo.com[SMTP:DBOOMGARDEN@YAHOO.COM]
Sent: Sunday, November 13, 2011 1:03:40 PM
To: BOR-SHA-KFO-Klamathsd; werner@wrinkledog.com
Subject: Web Inquiry: Save the dams
Auto forwarded by a Rule

Name: Donnabelle Boomgarden
Organization: Shasta Indian Nation

Comment 1 - Cultural Resources

Subject: Save the dams

Body: By removing the dams Village and burial sites will be destroyed and\or open to vandalism. This is our heritage, a key to our culture. Most of Siskiyou County is our aboriginal land. We need to protect it. Thank You

Comment Author	Boomgarden, Donnabelle
Agency/Assoc.	Shasta Indian Nation
Submittal Date	November 13, 2011

Comment Code	Comment Response	Change in EIS/EIR
IT_WI_1113_079-1	Master Response CUL-1 Shasta Nation Participation. Master Response CUL-2 Federal Recognition. EIS/EIR Section 3.13, Cultural and Historic Resources, addresses potential impacts to village and burial sites. Additional details regarding potential impacts to buried sites and management of those sites were added to Sections 3.13.4.3 and 3.13.4.4 of the Draft EIS/EIR. The potential for vandalism of exposed sites was considered and is addressed in Mitigation Measure CHR-2 through the development of management plans and discovery plans, through consultations under the National Historic Protection Act (NHPA) Section 106, as applicable. In addition, Shasta would be included in the additional consultations under NHPA Section 106 for each mitigation measure.	Yes

Klamath Settlement

EIS/EIR PROCESS

IT_MF_1025_025

Comment Form

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: Deborah Bruce-Hostler

Organization: ~

Title: ~ [married to Hoopa tribal member]

Address: P.O. Box 433, Orleans CA 95556

Email:

Comment 1 - Environmental Justice

Comments: As indicated in the Executive Summary of the draft EIS/EIR on Klamath Facilities Removal, in Table ES-7: Summary of Controversies & Issues Raised by Agencies & the Public, a subject is missing that has been raised, regarding KBRA/KHSA impacts related to Environmental Justice, Water Rights, Trust Responsibility and the like.

- The language in the KBRA/KHSA and any legislative rewrite needs to be clarified and made absolutely specific that "Klamath tribes" (pg. ES-19) refers only to tribes that were signatories to the Agreements and can never in future be interpreted to refer to nonsigning tribes in the Klamath-Trinity watershed, so that waivers ~~or termination~~ of water rights or termination of federal Trust Responsibility cannot be applied to nonsigning tribes (such as the Hoopa Valley Tribe).
- The EIS/EIR and legislative language affecting the KBRA/KHSA ~~also~~ need to acknowledge potential negative impacts to the environment, social justice, and environmental justice created by waiving or terminating of water rights or Trust Responsibility and NOT SET LEGAL PRECEDENT for the federal government to impose on other tribes anywhere in the U.S. such a waiver or end to Trust Responsibility. → (over)

Public Disclosure: It is not required that you submit personal information. If you decide to do so, please note that this information may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Please place
first class
postage here

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

Comment 1 cont. - EJ

DOI needs to describe 'legal precedent's' impacts and other impacts per if DOI decides for dam removal /KBRA/KHSA but legislatures never fund it.

Comment Author	Bruce-Hostler, Deborah
Agency/Assoc.	Hoopa Valley Tribe
Submittal Date	October 25, 2011

Comment Code	Comment Response	Change in EIS/EIR
IT_MF_1025_025-1	Draft EIS/EIR Table ES-7 has been revised to include environmental justice, water rights, and tribal trust responsibility. Master Response TTA-1 Federal Trust Responsibility and the KBRA.	Yes

IT_EM_1117_083

From: Clarence/Deborah[SMTP:ACORNCAPP@YAHOO.COM]
Sent: Thursday, November 17, 2011 6:24:50 PM
To: BOR-SHA-KFO-Klamathsd
Cc: KSDcomments@dfg.ca.gov
Subject: KBRA and dam removal comments
Auto forwarded by a Rule

Amended Comments by Deborah Bruce-Hostler (additions and main points are in bold italics)--
revised from comments given at Public Hearing on Klamath Dam Removal Draft EIS/EIR, 10-25-2011, Orleans CA

I am a resident of Orleans, CA; married to a Hoopa Tribal member; our family feeds dancers, ceremonialists and families at Jump Dance world renewal ceremonies in Hoopa; we serve acorns, salmon, and sometimes sturgeon to dancers and families at the 10-day ceremonies. ***The salmon that are are part of these ceremonies come from the Trinity River, the main tributary to the Klamath, and from the Klamath itself when Yurok friends bring fish from the mouth of the Klamath. Since juvenile and spawning salmon must travel the lower Klamath to reach the Trinity, the health of the Klamath, its water quality and temperature, and the health of the fish are of highest importance to us. I support dam removal but consider the KBRA and KHSA to be seriously flawed documents that were reached in bad faith and that violate the rights of the Hoopa Valley Tribe. Restoration of the Klamath River and its salmon, should be achieved without the KBRA and KHSA.***

As indicated in the Executive Summary of the Klamath Facilities Removal *Public* Draft EIS/EIR, in Table ES-7, Summary of Controversies and Issues Raised by Agencies and the Public, a subject is missing that has been raised, regarding KBRA/KHSA ***impacts related to environmental justice, water rights, Trust Responsibility***, and the like.

The language in the KBRA/KHSA ***and any legislative rewrites/revisions*** needs to be clarified and made absolutely specific that ***"Klamath Tribes" refers only to tribes that were signing Parties to the Agreements and can never in future be interpreted to refer to nonsigning tribes in the Klamath-Trinity watershed, so that waivers of water rights or termination of federal Trust Responsibility cannot be applied to nonsigning tribes.***

A version of draft legislation at this time has language addressing this concern but in numerous other paragraphs repeatedly and ***vaguely*** refers to "Klamath Tribes" which in future could be interpreted as a geographic description and not a specific reference to specific tribal government entities.

The EIS/EIR and final legislative language affecting the KBRA/KHSA need to acknowledge and protect against potential negative impacts to the environment, social justice, and environmental justice created by waiving or termination of water rights or Trust Responsibility and not set legal precedent regarding diminishment of Trust Responsibility, rights and protections for tribes anywhere in the U.S.

Comment 1 - Environmental Justice

Comment 2 - ITAs

Comment 3 - Water Quality

As Mr. Pat Higgins has pointed out, KBRA implementation disallows participation by federally recognized tribes in the Klamath-Trinity region who did not sign on to the Agreements—on committees and in decision-making related to fisheries or water quality for 50 years, ***which is a major social injustice.***

On the subject of water quality impacts on the Klamath *and Trinity River* fisheries: dam removal without reducing nutrients in the Upper Klamath Basin will increase nitrogen seasonally in the lower Klamath leading to continued fish disease epidemics ***affecting also the Trinity River.*** The DEIS/DEIR does not discuss applying ecological restoration techniques and principle that are the only scientifically valid means of abating the water pollution crisis and restoring native fish.

Comment 4 - Hydrology

The EIS/EIR and legislative language need to correct these flaws and weaknesses in the Agreements and alternative plans, ***as well as presenting a plan for restoration, guaranteed flows for the health of the rivers and fisheries in the event of a positive Secretarial determination rendered ineffective by legislative stalling or becoming an unfunded mandate.***

Comment 5 - KHSA

In addition, Department of the Interior must revise its approach to this and parallel processes insofar as desisting from favoritism to extractive water users, and bad faith and actual lack of transparency, and rather practice true, ethical transparency and uphold restoration values.

Comment 6 - Other/General

ADDED COMMENTS: To reinforce this statement, drawing attention to parallels with the KBRA/KHSA process and the exclusion of crucial stakeholders, I quote below portions of the recent letter to Secretary Salazar from five California state representatives regarding procedural violations with the Bay Delta Conservation Plan (BDCP). This is relevant to current Klamath issues in several ways, including that the Bay Delta Conservation Plan will not only impact fisheries in the Central Valley and Delta, but the fish, communities and Indian tribes of the Trinity--a Delta Tributary Watershed affected by the Bay-Delta Conservation Plan--and Klamath rivers.

First to quote from an article by Dan Bacher on alternet: 'Five Northern California Representatives today demanded answers on the current state of the Bay Delta Conservation Plan (BDCP) process – and called on the Interior Department to rescind a "flawed" Memorandum of Agreement (MOA) that they say "was developed behind closed doors." The Members of Congress accused the memorandum of giving water export agencies south of the Delta and in Southern California "unprecedented influence" over an important public process concerning California's fresh water supplies.

The Representatives echoed the concerns of Delta residents, family farmers, fishing groups, Indian Tribes and environmentalists, who oppose the state-federal plan to build the peripheral canal to export more water from the Sacramento-San Joaquin River Delta to corporate agribusiness and southern California. They oppose the canal because of the threat it poses to imperiled Central Valley salmon and Delta fish populations, Delta farms and Delta communities.

Comment 6 cont.

In a letter to Interior Secretary Ken Salazar, U.S. Reps. George Miller (CA-7), Mike Thompson (CA-1), Doris Matsui (CA-5), Jerry McNerney (CA-11) and John Garamendi (CA-10) asked that the recent agreement between the Department and water agencies be rescinded and that the process be opened up to include other key stakeholders left out of the discussions, including Bay Area, Delta and coastal communities, farmers, businesses, and fishermen.'

And to quote portions of the representatives' letter to Salazar:

"Dear Secretary Salazar:

We are writing to follow up our recent meetings with Interior officials and other participants in the Bay Delta Conservation Plan (BDCP) and to express our strong objections to the current direction of that plan.

The constituents we represent have a great deal at stake in the future of the BDCP process and ultimate plan. Delta, Bay Area and coastal communities, residents of the floodplain, farmers, businesses, fishermen, and the rest of our constituents could be profoundly affected by the BDCP. But to date, the BDCP planning process has failed to treat these affected groups in a fair and transparent manner, and we do not believe that the emerging plan is reflecting Bay-Delta constituencies' concerns and interests.
[…] Specifically, it does not appear that the federal government is taking seriously the goal of restoring endangered salmon or that it intends to operate the Central Valley Project to meet the statutory mandate to protect, restore, and enhance fish, wildlife, and associated habitats

The agreement further establishes an unequal process going forward: the MOA invites the water export contractors to collaborate with the federal agencies on the responses to public comments, allows the water export contractors early and exclusive access to draft consultant work product, and gives the water export contractors direct control over the consultants who are writing the documents. California's Legislative Analyst's Office recently testified before the State Assembly about additional provisions of this document that "may be seen as favorable to the contractors," including the fact that a public NEPA document may not be issued without explicit authorization from the water export contractors. This raises very serious questions about whose process this is, ultimately; if the water export contractors' funding has given them control over the process, it would be to the detriment of the Bay-Delta and to the public interest. […]

Interior should immediately rescind this flawed MOA and work instead to establish a successful BDCP process that is transparent and based on parity, and that genuinely puts the restoration of the Bay-Delta and its fisheries, the needs of local communities, and the quality of local water resources on par with other water supply goals. That includes: […] Maintaining state and federal agencies' ability to implement other statutory mandates including, but not limited to, the CVPIA's anadromous fish restoration program (including

Comment 6 cont.

B2 water, the Restoration Fund, and other activities), the refuge water supply program, Trinity River restoration […]"

[I submit this document as additional comments to those given at the Orleans hearing, 25 October 2011.]

Deborah Bruce-Hostler

acorncapp@yahoo.com
P.O.Box 433, Orleans CA 95556

Comment Author	Bruce-Hostler, Deborah
Agency/Assoc.	Hoopa Valley Tribe
Submittal Date	November 17, 2011

Comment Code	Comment Response	Change in EIS/EIR
IT_EM_1117_083-1	Draft EIS/EIR Table ES-7 has been revised to include environmental justice, water rights, and tribal trust responsibility. Master Response TTA-1 Federal Trust Responsibility and the KBRA.	Yes
IT_EM_1117_083-2	Master Response TTA-7 Tribal Involvement in Future Discussions of Water Management.	No
IT_EM_1117_083-3	It is expected over the life of the project that improvements in water quality will contribute to reducing or ending fish disease epidemics. Master Response WQ-22 TMDLs and the No Action/No Project Alternative (and Alternative 4). Master Response WQ-4 C, D Hydroelectric Project Impacts to Water Quality & Anticipated Klammath Hydroelectric Settlement Agreement (KHSA)/KBRA Improvements.	No
IT_EM_1117_083-4	The KBRA and KHSA were developed to address the flaws noted by the comment author in the comment coded IT_EM_1117_083-3. As noted above in the response to comment IT_EM_1117_083-3, it is expected over the life of the project that improvements in water quality will contribute to improved conditions in the health of the river and the fisheries.	No
IT_EM_1117_083-5	Master Response GEN-7 Unsubstantiated Information. Master Response KHSA-1 Negotiations of KHSA and KBRA. Master Response GEN-16 Public Involvement. Master Response N/CP-20 Response to Public Comment.	No
IT_EM_1117_083-6	Master Response GEN-1 Comment Included as Part of Record.	No

IT_LT_1230_098

YUROK TRIBE

190 Klamath Boulevard • Post Office Box 1027 • Klamath, CA 95548

Ms. Elizabeth Vasquez
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825,
June 22, 2011

Mr. Gordon Leppig
California Department of Fish & Game
619 Second Street
Eureka, CA 95501

Re: Yurok Tribe's Comments on Klamath Facilities Removal Public Draft Environmental Impact Statement/ Environmental Impact Report (EIS/EIR)..

Dear Ms. Vasquez and Mr. Leppig:

With this letter and the attached comments, the Yurok Tribe transmits its comments on the Facilities Removal Public Draft EIS/EIR. Specific comments can be found in an accompanying document titled: Specific Comments of the Yurok Tribe on the on the Klamath Facilities Removal Public Draft EIS/EIR.

Comment 1 - Approves of Dam Removal

The Yurok Tribe firmly believes that the available information overwhelmingly indicates the need for either full or partial dam removal (Alternatives 2 or 3) in order to bring about the restoration of the salmon and the communities in the Klamath Basin. We believe that when the Secretary looks at the intent of the KBRA, the purpose and need of this EIS/EIR, and the vast amount of information collected for this EIS/EIR, the Secretary will select either Alternative 2 or 3 as the Preferred Alternative. We are strongly supportive of selection of one of these alternatives because the available scientific and technical information confirm that either one of them would greatly benefit the Klamath River and affected communities.

However, the Draft EIS/EIR fails to properly asses the Yurok Tribe interest in the Klamath agreements and dam removal as compared to the Hoopa Valley Tribe and Resighini Rancheria. The Yurok Tribe catches fish from the Klamath River side of the basin. The Hoopa Valley Tribe does not fish on the Klamath River, and Resighini

Comment 2a - ITAs

Comment 2a - cont.

Rancheria has no fishing rights on the Klamath River. The Document fails to characterize the fish harvest of the Yurok Tribe in terms of the number of fish the Yurok Tribe catches. As a result it appears that the Yurok and other Tribes mentioned in the DEIS have the same interests. They do not. The Yurok Tribe has a greater interest as compared to the Hoopa Valley Tribe and Resighini Rancheria.

General Comments:

Since time immemorial, the Yurok Tribe has lived on the Klamath River and has depended on the river for spiritual and physical sustenance. It is our sacred duty as Yurok People to care for and restore the Klamath River. This responsibility has been carried through the generations, and is at the core of our identity as river people.

In modern times, the Yurok Tribe has expended considerable time and effort to restore the Klamath River, guided by traditional knowledge and western scientific knowledge. We have heeded the advice of both elders and scientists who have advised us that the dams were killing our river and our salmon. This document proves beyond any doubt the incalculable harm that JC Boyle, Copco 1, Copco 2, and Iron Gate Dams have done to the Klamath River.

This EIS/EIR represents a huge step forward in our knowledge of the Klamath River, for it pulls together for the first time the vast amount of information that is known about how the dams are harming our fish, and about what effects dam removal would have to the river.

In particular, the Yurok Tribe firmly believes that the information in the Draft EIS/EIR is generally high quality and unbiased, and we point out the robust peer-review process as an example by which the Federal Government adds to the value of the science they (and others) conduct.

Comment 3 - NEPA/CEQA

There are some aspects of the document which call for attention, however. By law, a NEPA/CEQA document such as this must look at all effects, both positive and negative, of implementing a proposed action (removal of four dams). However, the prescribed structure of both NEPA and CEQA are poorly suited to analyzing actions where the essence of the action is to bring about an improvement for fish. All restoration actions have some undesirable effects, yet these undesirable effects have become the focus of analysis for an action that is inherently restorative. Another fundamental flaw of the EIS is an inherent inability to balance the significant gains with the risk of no action. This is a particular problem with the CEQA analysis which requires (sometimes expensive) mitigations on all actions with significant effects, even if the long-term effect is overwhelmingly positive.

Another concern we have is in the analysis of the "No Action" alternative of the Draft EIS/EIR. For many of the resources, an assumption has been made for the No Action

2

Comment 4 - Alternatives

Comment 4 - cont.

alternative that current conditions would continue unchanged into the future if no action was taken. We disagree with this fundamental assumption, because in many instances there is insufficient information to draw that conclusion, and in other cases, information exists that suggests that the situation for salmon will continue to deteriorate. As bad as things are for salmon because of the dams and other factors, it is not clear that the situation has stabilized and there is a possibility that "No Action" means a continuing and inexorable slide into conditions that will threaten the very existence of salmon in the Klamath Basin. The Draft EIS/EIR should explicitly acknowledge this uncertainty throughout the document where appropriate.

Comment 2b - ITAs

Finally, the Yurok Tribe has very serious concerns about the way that Tribal Trust resources were characterized for the Klamath River in the Draft EIS/EIR. The Draft EIS/EIR is deficient because it doesn't put the Yurok Tribal fishing rights in proper context to the other tribes. The Draft EIS/EIR fails to point out the fact that under the Hoopa-Yurok Settlement Act, the Resighini Rancheria as an entity and as individuals have given up all rights to resources on the Yurok Reservation. The Yurok Tribe harvests 90% of the Chinook (as a share of tribal harvest) in the Klamath Basin. The Hoopa Valley Tribe harvests no Klamath fish, and the Resighini have no fishing rights on the Klamath River.

The Klamath River should never have been dammed in the first place. Promises were made and consequently broken, to provide fish passage, and now that passage and water quality improvements are required, an agreement has been reached to remove the dams. It is clear from looking at the EIS/EIR that dam removal and associated restoration actions will:

1. Alleviate significant water quality problems in the basin, particularly warm fall temperatures that harm spawning salmon;

2. End the poisoning of the river with toxic microcystin which has sickened many Tribal members and appears to be worsening over time;

3. Create a significant number of jobs;

4. Increase the geographic and genetic diversity of salmon runs on the Klamath;

5. Save PacifiCorp ratepayers (including many tribal members) a significant amount of money;

6. Restore the geomorphic processes necessary to sustain fisheries habitat and control deadly disease conditions on the Klamath River;

7. Form a basic foundation for the restoration of the entire Klamath ecosystem as a whole.

The attached document Specific Comments of the Yurok Tribe on the on the Klamath Facilities Removal Public Draft EIS/EIR contains the Yurok Tribe's detailed technical comments on the EIS/EIR.

Sincerely:

Marjorie Buckskin

Marjorie Buckskin
Vice Chair
Yurok Tribe
PO Box 1027
Klamath, CA 95548
(530)482-1350

4

Specific Comments of the Yurok Tribe on the on the Klamath Facilities Removal Public Draft EIS/EIR..

Comments Apply to Pages and Sections noted. We provide comments on:

1. **Tribal Trust and Fishing Rights Issues**
2. **Water Quality**
3. **Aquatic Ecology and Hydrology**
4. **Aquatic Resources; Diseases and Parasites**
5. **Dam Removal Detailed Plan and Cost Estimates**
6. **Broadly Applicable Comments from YTEP**

In general, quotes from the Draft EIS/EIR are italicized, and the page number is referenced at the beginning of the comment.

1. Tribal Trust and Fishing Rights Issues

Comment 5 - ITAs

General comment: the DEIS fails to properly asses the Yurok Tribe interest in the Klamath agreements and dam removal as compared to the Hoopa Valley Tribe and Resighini Rancheria. The Yurok Tribe catches fish from the Klamath River side of the basin. The Hoopa Valley Tribe does not and Resighini has no fishing rights. The Document fails to characterize the fish harvest of the Yurok Tribe in terms of the numbers of fish the Yurok Tribe catches. As a result it appears that the Yurok and other Tribes mentioned in the DEIS have the same interests. They do not. The Yurok Tribe has a greater interest as compared to the Hoopa Valley Tribe and Resighini Rancheria.

Pg 3.8-12 *"The 239-acre Resighini Rancheria is located near the mouth and on the south bank of the Klamath River, and is surrounded by the Yurok Reservation. The Rancheria Reservation was purchased by the Bureau of Indian Affairs in 1938 under the authority of the Indian Reorganization Act, and proclaimed an Indian reservation by Secretarial Order in 1939. Any fishing and concomitant water rights associated with the Resighini Rancheria have not yet been determined."*

The Yurok Tribe disagrees with this assessment of Resighini Rancheria's fishing rights. Resighini Rancheria members have expressly given up their rights to resources (including fish) on the Yurok Reservation. Under the Hoopa-Yurok Settlement Act of 1988, 25 U.S.C. §§ 1300i, *et seq.*, (the Settlement Act") the extended strip of land along the Klamath River was cleaved from the original Hoopa Valley Reservation and designated the Yurok reservation. Section §1300i-1(e) then vested in the Yurok Tribe the authority to govern the Yurok

Comment 6- ITAs

Comment 6 cont.

Reservation and to administer the unalloted trust land and assets – including the fisheries – of the Yurok Reservation.

Pursuant to the Settlement Act, members of the Resighini Rancheria with Yurok heritage were given two opportunities to join the Yurok Tribe, either as a political unit or individually. Rancheria members were given the opportunity to merge the Rancheria as a political unit into the Yurok Reservation. 25 U.S.C §1300i-10(b). However, the members of the Rancheria voted against any merger with the Yurok Reservation. The Settlement also provided qualified Indians of the original Hoopa Valley Reservation, which included allottees or their descendants, the opportunity to elect membership in the Yurok Tribe. 25 U.S.C. 1300i-5(c)(1). An Indian who chose not to affiliate with the Yurok Tribe (or the Hoopa Valley Tribe) received a lump sum payment, but lost any "interest or right whatsoever in the ... resources within or appertaining to... the Yurok Reservation." 25 U.S.C. 1300i-5(d)(3).

Comment 7 - ITAs

Page 3.12-27 *"A small length of the northern border of the reservation includes about a quarter mile reach of the Klamath River called Saints Rest Bar several miles upriver from Weitchpec, California."*

Please add text that indicates that no Hoopa Valley Tribal members reside on or near the Klamath River in this portion of the Hoopa Valley Reservation, and that no fishing takes place by Hoopa Valley Tribal members at that location.

Comment 8 - ITAs

Page 3.12-31: First hand descriptions of river conditions by Sherman and Nelson apply to Trinity River, and this needs to be made clear. The EIS/EIR is correct when it states on page 3.12-28 that the primary effect of the Proposed Action to the Hoopa Valley Tribe is that Trinity fish could be affected positively by the proposed action as they migrate through the lower 42 miles of the Klamath River. The effects described in this section are real, and are significant, but are unrelated to the proposed action because they apply to the Trinity River and not the Klamath River.

Page 3.12-43 *"While the "fish wars" and accompanying litigation of the 1970s and 1980s reinstated Yurok fishing rights and the Hoopa-Yurok Settlement Act further confirmed that the Yurok Tribe had fishing rights, (Resighini) Rancheria members were left out of that settlement."*

The Yurok Tribe disagrees that Resighini Rancheria was left out of the Hoopa-Yurok Settlement Act. Pursuant to the Settlement Act, members of the Resighini Rancheria with Yurok heritage were given two opportunities to join the Yurok Tribe, either as a political unit or individually. Rancheria members were given the opportunity to merge the Rancheria as a political unit into the Yurok Reservation. 25 U.S.C §1300i-10(b). However, the members of the Rancheria

2

Comment 9 - ITAs

Comment 9 cont.

voted against any merger with the Yurok Reservation. The Settlement also provided qualified Indians of the original Hoopa Valley Reservation (which encompassed present day Hoopa Valley and Yurok Reservation), which included allottees or their descendants, the opportunity to elect membership in the Yurok Tribe. 25 U.S.C. 1300i-5(c)(1). An Indian who chose not to affiliate with the Yurok Tribe (or the Hoopa Valley Tribe) received a lump sum payment, but lost any "interest or right whatsoever in the ... resources within or appertaining to... the Yurok Reservation." 25 U.S.C. 1300i-5(d)(3).

Comment 10 - ITAs

Page 3.12-44 *"Any Klamath River salmonid fishing rights and concomitant water rights to which the Resighini Rancheria may be entitled have not yet been determined. The United States does not currently recognize a Rancheria right to a fishery and the Rancheria does not currently have an instream water right."*

The Yurok Tribe disagrees with this assessment of Resighini Rancheria's fishing rights. Resighini rights have been determined because Resighini Rancheria members have expressly given up their rights to resources (including fish) on the Yurok Reservation. Under the Hoopa-Yurok Settlement Act of 1988, 25 U.S.C. §§ 1300i, *et seq.*, (the Settlement Act") the extended strip of land along the Klamath River was cleaved from the original Hoopa Valley Reservation and designated the Yurok reservation. Section §1300i-1(e) then vested in the Yurok Tribe the authority to govern the Yurok Reservation and to administer the unalloted trust land and assets – including the fisheries – of the Yurok Reservation.

Pursuant to the Settlement Act, members of the Resighini Rancheria with Yurok heritage were given two opportunities to join the Yurok Tribe, either as a political unit or individually. Rancheria members were given the opportunity to merge the Rancheria as a political unit into the Yurok Reservation. 25 U.S.C §1300i-10(b). However, the members of the Rancheria voted against any merger with the Yurok Reservation. The Settlement also provided qualified Indians of the original Hoopa Valley Reservation, which included allottees or their descendants, the opportunity to elect membership in the Yurok Tribe. 25 U.S.C. 1300i-5(c)(1). An Indian who chose not to affiliate with the Yurok Tribe (or the Hoopa Valley Tribe) received a lump sum payment, but lost any "interest or right whatsoever in the ... resources within or appertaining to... the Yurok Reservation." 25 U.S.C. 1300i-5(d)(3).

2. <u>Water Quality</u>

Eli Asarian and Jake Kann assisted Yurok Tribal Environmental Program (YTEP) and the Klamath Basin Tribal Water Quality Workgroup members in reviewing the following sections: Executive Summary, Chapters 1 (Introduction), 3.2 Water Quality, 3.4 Algae,

Appendix C Water Quality Supporting Technical Information, and a very limited portion of section 3.3, Aquatic Resources.

Eli Asarian serves as Kier Associates' principal water quality analyst and Klamath River basin water quality science support team leader. Mr. Asarian has participated in the work of the Klamath Basin Tribal Water Quality Work Group for the past seven years, acquiring and reviewing reports and datasets and preparing comments to support Tribal involvement in watershed assessment and restoration programs, including those concerning Klamath Hydroelectric Project relicensing and decommissioning; Total Maximum Daily Load (TMDL) plan development; the Klamath Basin Restoration Agreement, Klamath Hydropower Settlement Agreement and the Klamath Basin Monitoring Program. Eli has co-authored many reports analyzing water quality conditions in the Klamath River. More details available at: http://www.riverbendsci.com/cv

Dr. Jacob Kann, owner of Ashland, Oregon-based Aquatic Ecosystem Sciences, is an aquatic ecologist and has extensive knowledge and experience working in the Klamath Basin. He has worked for the Klamath Tribes' (of Oregon) natural resources department. While serving with the Klamath Tribes Dr. Kann completed his doctoral dissertation concerning the relationships among water quality, phytoplankton development and fish health in Klamath Lake. Over the past 20 years Dr. Kann has completed a number of key Klamath River water quality investigations, including the 2009 assessment of nutrient budget dynamics for the Klamath's Iron Gate and Copco reservoirs. More details available at: http://www.aquatic-ecosciences.com/Home/curriculum-vitae-for-j-kann-ph-d.

General Comments

Overall the water quality information presented in the Klamath TMDL is of high quality and will provide the Secretary of the Department of the Interior with the information necessary to adequately understand the effects of the Proposed Action on water quality in the Klamath River. In our comments, we provide many suggested edits to improve the scientific accuracy and completeness of the DEIS/DEIR. There are many cases in which issues are discussed in multiple parts of the DEIS/DEIR. If we suggested a revision regarding an issue in one part of the DEIS/DEIR, and that same suggested revision would logically apply to another part of the DEIS/DEIR, it is our intent that the revision should be made throughout the DEIS/DEIR even if we did not explicitly list every section in which the issue appears.

Our comments below are organized according to the chapter numbers and page numbers used in the DEIS/DEIR.

Executive Summary

Comment 11 - Water Quality

Page ES-44: The word "*in*" is missing before 2020 in the sentence listed below in Table ES-6 (beneficial effects): "*Largely eliminates 2020 dissolved oxygen and pH problems produced in reservoirs in the Hydroelectric Reach and transported downstream.*"

Page ES-45: The following footnote at the end Table ES-6 should probably be deleted, because increased periphyton is not mentioned in the table:
"Increased periphyton biomass would not affect levels of algal toxins in the Klamath River. The noxious blooms of phytoplankton (suspended algae) occurring in the calm, lake-like waters of Copco 1 and Iron Gate Reservoirs are responsible for the production of algal toxins, such as microcystin, in the Klamath River downstream of Iron Gate Dam (see Section 3.4). Noxious phytoplankton would not thrive in the free-flowing river following dam removal."
However, this is a very important point, so if it is deleted here, it should be included prominently somewhere else.

Comment 12 - Water Quality

Chapter 1, Introduction

Comment 13 - Water Quality

Comment 14 - Other/ General

Page 1-6: "*Upper Klamath Lake has become more enriched with nutrients, leading to nuisance blooms of blue-green algae that produce toxins (primarily microcystin) and creating pH and dissolved oxygen problems that are stressful to aquatic biota.*" Major issues are pH/DO not toxins. Revise sentence to reverse order.

Page 1-6: The DEIS/DEIR appears to use the term "Keno Reach" to describe Keno Reservoir, which is different than is typical in most other Klamath Basin literature (for example, see PacifiCorp's [2004] Final License Application and FERC's [2007] EIS). For example: *"The 20-mile Keno Reach of the Klamath River receives large loads of decaying organic matter (blue-green algae) from Upper Klamath Lake, producing extremely low dissolved-oxygen levels that persist in the summer and fall."*

In most other Klamath River documents, "Keno Reach" typically refers to un-impounded reach of the Klamath River between Keno Dam and J.C. Boyle Reservoir, while "Keno Reservoir" is typically used to refer to the impoundment that spans from Link River to Keno Dam. For example, see pages 3-9 and 3-11 in FERC (2007):

- "Keno Reservoir (RMs 253.1–233.0)"
- "Keno Reach (RMs 233–228.3)"

If possible, this should be corrected throughout the document, though it is not essential because "Keno Reach" is used by some people/documents to describe Keno Reservoir (as is done in the DEIS/DEIR). Note: we did not look through the entire DEIS to see if "Keno Reach" is also sometimes used to refer to the un-impounded reach of the Klamath River between Keno Dam and J.C. Boyle Reservoir.

Comment 15 - Water Quality

Page 1-7: *"The four dams create water temperature in the river that are too warm in the fall for fish migration..."* This should be checked, as it is likely (though we did not do a detailed investigation of available evidence to confirm) that the reservoirs probably do not actually make the river too warm for migration, just too warm for optimal spawning and incubation. For example, look at Josh Strange's studies of how fall Chinook migration is affected by water temperature. (www.yuroktribe.org/fisheries.)

3.2 Water Quality

Comment 16 - Water Quality

Page 3.2-17: *"Annual TP and TN loading reduction (TP=22,367 lbs and TN=120,577 lbs) to offset the reduced nutrient assimilative capacity in the reservoirs (as compared to a free-flowing river condition)"*
It is important to define what is meant here by assimilative capacity, because people use the word assimilative capacity in different ways and you need to be clear which one you are using here. The reservoirs absorb more nutrients (per mile) than the free-flowing river does; therefore if someone is thinking of the other definition of "assimilative capacity" they will be very confused when the document says that the reservoirs have LESS assimilative capacity.
The suggested revision is to add a footnote about the definition of assimilative capacity: (begin suggested text)"*The phrase 'assimilative capacity' here refers to the maximum amount of nutrients that can enter the reservoirs and still allow for water quality conditions in the reservoirs to meet water quality standards (i.e. for dissolved oxygen and algae). Because of their warm quiescent waters, the reservoirs are inherently more prone to nuisance blue-green algal blooms than free flowing reaches are. In other contexts (on page 3.3-87 of this document), 'assimilative capacity' is used to refer to the amount of nutrients that are removed (through physical, biological, and chemical processes) as water flows downstream." "In the absence of the reservoirs, hydraulic residence time in this reach would decrease from several weeks to less than a day, and water quality would also be improved by nutrient assimilation in this reach (Hamilton et al. 2011)."* This should be removed this is an awkward way to make the point.

Page 3.2-21: This sentence *"Water temperatures in the bypass reach can decrease by 5–15°C (9-27°F) when peaking operations are underway (Kirk et al. 2010)."* Should be revised to "...when bypass operations are underway..." because the peaking operations do not affect water temperatures in the bypass reach. The bypass operates almost constantly (except during the highest flows when both turbines at the Boyle Powerhouse are at capacity and water is allowed to spill of Boyle Dam into the bypass reach), whereas the peaking typically occurs for some hours each day. Water temperatures in the bypass reach are not affected by peaking operations, because during non-peaking hours water is stored in Boyle Dam, it is not released in the bypass reach.

Comment 17 - Water Quality

6

Comment 18 - Water Quality

Page 3.2-23: Grammatical correction: the sentence "*Under low-flow summertime conditions, when the mouth can closed...*" should be revised to "...mouth can close..."

Comment 19 - Water Quality

Page 3.2-29: The wording of the following quoted sentence suggests that *M. aeruginosa* can produce anatoxin and saxitoxin, which is incorrect: "*Some cyanobacteria species, such as M. aeruginosa, produce cyanotoxins (e.g., cyclic peptide toxins that act on the liver such as microcystin, alkaloid toxins such as anatoxin-a and saxitoxin that act on the nervous system) that can cause irritation, sickness, or in extreme cases, death to exposed organisms, including humans (World Health Organization [WHO] 1999).*"

We suggest that this sentence be revised as follows:
"Some cyanobacteria species produce cyanotoxins (e.g., cyclic peptide toxins that act on the liver such as microcystin, alkaloid toxins such as anatoxin-a and saxitoxin that act on the nervous system) that can cause irritation, sickness, or in extreme cases, death to exposed organisms, including humans (World Health Organization [WHO] 1999). Species capable of producing microcystin include *Microcystis aeruginosa*, while species in the genus *Anabaena* can produce anatoxin-a and saxitoxin."

Comment 20 -Water Quality

Page 3.2-29: "*Additional microcystin data collection in Upper Klamath Lake is ongoing, including measurement of toxin levels in native suckers (Vanderkooi et al. 2010, see Section 3.3, Aquatic Resources for more detail).*" While Vanderkooi et al. 2010 found histological evidence (i.e. physical changes observed in dissections) consistent with damage from microcystin toxin, there have not yet been any published reports that actually measure toxin levels in suckers.

Comment 21 - Water Quality

Page 3.2-26: "*These scenarios also represent Keno Dam as the historical natural Keno Reef, such that the Keno Reach is not a free-flowing reach (Tetra Tech 2009).*" This sentence is unclear and thus potentially misleading and should be revised. The height of the rock reef in T1BSR is lower than Keno Dam. Excerpt from Kirk et al. 2010: "*The natural conditions baseline scenario simulated the Klamath River from Upper Klamath Lake to the Pacific Ocean in the absence of all dams, except for Link Dam, but represented the presence of the historic Keno Reef (a natural basalt outcrop that was removed prior to construction of the Keno dam). Keno Reef was represented using data provided by the Bureau of Reclamation with an elevation of 1244.5 meters (4083 feet), whereas normal full pool elevation is 1245 meters (4085 feet) (PacifiCorp 2004a).*" Therefore, the suggested revision for the sentence is "In the T1BSR, TOD2RN, and TCD2RN scenarios (but not T4BSRN), Keno Dam is replaced by the historical natural Keno Reef, such that the Keno Reach is still partially impounded even though the

7

Comment 21 cont.

reef's elevation is two feet lower than the current full pool elevation of Keno Reservoir (Tetra Tech 2009, Kirk et al. 2010)."

Comment 22 - Water Quality

Page 3.2-59: This sentence over-states the degree to which the reservoirs release TN:
"Continued impoundment of water at the Four Facilities could result in long-term interception and retention of TP and TN in the KHP reservoirs on an annual basis and release (export) of TP and TN to the Klamath River downstream of Iron Gate Dam on a seasonal basis."
The suggested revision is to revise the sentence to end with "...release (export) of TP to the Klamath River downstream of Iron Gate Dam on a seasonal basis."
For justification, see comments regarding Page 3.2-60 below.

Comment 23 - Water Quality

Page 3.2-60: These sentences over-state the degree to which the reservoirs release TN:
"Further, in late-summer and fall (i.e., August-November), TP and TN concentrations can increase downstream of the KHP reservoirs due to release of TP (as ortho-phosphorus) and, to a lesser degree, TN (as ammonium), which are formed during periods of seasonal hypolimnetic anoxia in Copco 1 and Iron Gate reservoirs. This seasonal release occurs during periods that may stimulate periphyton growth in the Klamath River downstream of Iron Gate Dam (see Appendix C, Sections C.3.1.4 C.3.2.1). "
While some ammonia is released into the Klamath River from Iron Gate Dam (i.e. ammonia concentrations are higher immediately below Iron Gate than immediately above Copco Reservoir) the reservoirs remove many times that amount of nitrate and therefore the reservoirs have an overall reducing effect on the amount of bioavailable inorganic (nitrate plus ammonia) nitrogen in the Klamath River below Iron Gate Dam.
Therefore, the suggested replacement language for the two sentences quoted above is:
"On a seasonal basis, reservoir sediments can release phosphorus to the water column during periods of seasonal hypolimnetic anoxia (see Appendix C, Sections C.3.1.4 C.3.2.1); however, most of the phosphorus released from the reservoir sediments during the anoxic period appears to remain within the hypolimnion until the reservoirs begin to turn over in the fall, and therefore is primarily not released into the river during the summer period of peak primary productivity downstream. An exception to this is that in many years TP concentrations are higher below Iron Gate Dam than above Copco Reservoir at times during the months of August through October during peak in-reservoir algal blooms, indicating that some release of TP does occur at times when it could stimulate periphyton growth in the Klamath River downstream of Iron Gate Dam."

Page 3.2-61: *"In the Hydroelectric Reach, the seasonal variability in dissolved oxygen concentrations in J.C. Boyle Reservoir is highly influenced by the adverse dissolved oxygen conditions in the upstream Keno Impoundment."* We are not aware (though have not fully investigated) of any evidence that dissolved oxygen levels

8

Comment 24 - Water Quality

Comment 24 cont.

in Keno Reservoir directly affect dissolved oxygen levels in J.C. Boyle Reservoir. Due to the steep and turbulent nature of the un-impounded river reach between Keno Dam and J.C. Boyle Reservoir, even if water leaves Keno with zero dissolved oxygen, it should be quickly brought back to near-saturation due to riffles and cascades in the turbulent river. It is true that the factors that cause low D.O. in Keno Reservoir (decomposition of algae and organic matter) also strongly affect D.O. in J.C. Boyle Reservoir; however, the actual D.O. concentration in water discharged from Keno Reservoir should not directly affect D.O. in J.C. Boyle Reservoir. Therefore, this sentence should be revised accordingly.

Comment 25 - Water Quality

Page 3.2-63: *"Continued impoundment of water at the Four Facilities could result in long-term seasonal and daily variability in dissolved oxygen concentrations in the Klamath River downstream of Iron Gate Dam, such that levels do not meet California North Coast Basin Plan and Hoopa Valley Tribe water quality objectives and adversely affect beneficial uses."*

The impoundment of water in the reservoirs does not contribute to *daily variability* in D.O. below Iron Gate Dam, but it does contribute to decreased overall (i.e. daily mean) D.O. (for example, see Figure 3.2-19 and 3.2-20 in the DEIS/DEIR). In addition, we are not aware of any evidence that the reservoir impoundments have a negative effect on dissolved oxygen on the Hoopa reservation (the only areas where the Tribe's water quality objectives apply); thus, the reference to "and Hoopa Valley Tribe" should be deleted if the intent is to discuss the effects of the dams Therefore, the suggested revision is to either delete "and daily variability" from the sentence, or replace the sentence with "Current dissolved oxygen concentrations in the Klamath River downstream of Iron Gate Dam are adverse, such that levels do not meet California North Coast Basin Plan water quality objectives and adversely affect beneficial uses. Continued impoundment of water at the Four Facilities could result in continued release of water with low dissolved oxygen concentrations from Iron Gate Dam into the Klamath River, contributing to those adverse conditions, particularly in the vicinity of the dam."

Comment 26 - Water Quality

Page 3.2-67: *"Continued impoundment of water at the Four Facilities could result in long-term seasonal and daily variability in pH in the Klamath River downstream of Iron Gate Dam."*

There is inconsistency regarding the pH issue in the DEIS/DEIR. In some sections, it is stated that the Proposed Action will increase pH below Iron Gate Dam, whereas in other places it is stated that it will decrease. We have researched the available information regarding this topic, and the evidence is confusing and unclear. On one hand, existing monitoring data from continuously recording pH probes indicate that pH during the summer is often higher, but not always, at Iron Gate than at sites downstream such as Seiad Valley (for example, see the

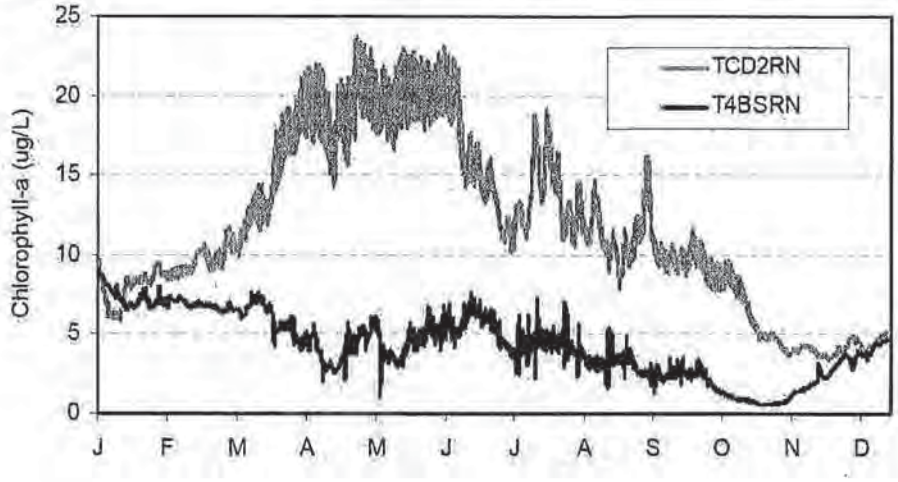
Comment 26 cont.

2000-2004, 2005, and 2007 data presented on pages C-47 to C-50 of the DEIS/DEIR appendix C). Additional pH data are available in the Karuk Tribe's 2008 water quality report (Karuk Tribe 2009) and the upcoming Klamath Hydroelectric Settlement Monitoring 2010 report (currently in draft). Additionally, as noted in comments regarding page 3.2-113 below, pH values in the surface of the reservoirs are extremely high (though they are less high at the ~5 m depth from which most water is withdrawn). These existing-conditions data would suggest that algal blooms within the reservoirs are contributing to high pH in the Klamath River below Iron Gate Dam under current conditions.

However, the TMDL model predicts that for the dams-in TMDL-compliance scenarios (T4BSRN)(used in the DEIS/DEIR to approximate the No Action/No Project Alternative), mid-summer pH would be extremely low (i.e. near 8.0 with almost no daily fluctuation), whereas mid-summer pH under the dams-out scenario (TCD2RN)(used in the DEIS/DEIR to approximate the Proposed Action), would range from 8.5-9.0(see Figure 3.2-24).

We are skeptical of these extremely low pH value for the dams-in scenario. Examination of the model results presented in Appendix 7 of NCRWQCB (2010a), indicate the low pH values appears to be caused by a combination of two factors: 1) lower periphyton biomass at Iron Gate Dam, and 2) extremely low water column chlorophyll levels in Iron Gate Reservoir. With the large decreases (relative to current conditions) assumed for TMDL implementation, it definitely seems possible that periphyton biomass would be lower with a dams-in scenario (due to nutrient-trapping in the reservoirs). However, the very low chlorophyll levels in Iron Gate Reservoir seem unlikely. The following figure (from page C-56 of NCRWQCB 2010a Appendix 7) shows that the model predicts that there would be mid-summer chlorophyll levels at Iron Gate Dam would be 3-7 ug/L for the dams-in scenario but 8-19 ug/L for the dams-out scenarios:

Comment 26 cont.



It seems extremely unlikely that impoundment of water would decrease water-column chlorophyll levels at Iron Gate Dam (which, in a dams-in scenario, reflect the output of Iron Gate Reservoir).

Due to the contradictory evidence described above, it is difficult to recommend how the DEIS/DEIR should approach this issue. In summary, the field data suggests that the reservoirs are increasing pH downstream of Iron Gate Dam; however, the TMDL model results suggest *with very aggressive upstream nutrient reductions*, it is potentially possible (though as we note above, it seems unlikely) that the reservoir's effect on pH could be eliminated or even reversed.

Page 3.2-69: Regarding meeting TMDL targets for algal toxins and chlorophyll-a, the DEIS states: "*This would require decades to achieve and it is highly dependent on improvements in nutrients in the upstream reach from Link River Dam to J.C. Boyle Dam (particularly Keno Impoundment including Lake Ewauna)*." This should also mention Upper Klamath Lake, the source of the water in Link River, thus the suggested revision is: "This would require decades to achieve and it is highly dependent on decreasing nutrients upstream in Upper Klamath Lake, Link River, and the Keno Impoundment including Lake Ewauna."

Comment 27 - Water Quality

Page 3.2-70: "*Under existing conditions, chlorophyll-a concentrations during summer through fall in the Klamath River downstream of Iron Gate Dam are lower than those in Upper Klamath Lake and the KHP reservoirs due to interception of algae by the KHP dams. However, concentrations are variable by location and increase as a result of periodic seasonal (i.e., summer, fall) in-reservoir algal blooms that are transported into the lower river (see Section 3.2.3.7).*"

Comment 28 - Water Quality

11

Comment 28 cont.

This first sentence is incorrect and confusing because it combines issues/processes that should be kept separate: 1) reasons for the decrease from UKL to above Copco Reservoir, 2) reasons for the increase from above Copco Reservoir to within the reservoirs, and 3) reasons for the decrease from within the reservoirs to below Iron Gate Dam). Also, since this section is about the Lower Klamath basin, it seems irrelevant to mention UKL (it would make more sense to discuss UKL in the preceding section: Upper Klamath Basin). Therefore, the suggested revision is:

"Under existing conditions, chlorophyll-a concentrations during summer through fall in the Klamath River downstream of Iron Gate Dam are higher than those in the river directly above Copco Reservoir, due to in-reservoir algal blooms that are transported into the lower river (see Section 3.2.3.7)."

Comment 29 - Water Quality

Page 3.2-70: *"The California Klamath River TMDLs include specific load allocations for TN and TP upstream of the Four Facilities to offset the reduced nutrient assimilative capacity in the reservoirs (see Section 3.2.2.4, Klamath River TMDLs); the decreased nutrient loads would limit algal growth and decrease chlorophyll-a and algal toxin levels in the KHP reservoirs toward the TMDL targets of 10 µg/L chlorophyll-a (growing season average), M. aeruginosa cell density 20,000 cells/L, and microcystin toxin <4 µg/L (NCRWQCB 2010a)."*

This should be revised to acknowledge the uncertainty of achieving the nutrient reductions and the effects of those reductions once met. The wording in the Upper Klamath Basin section on the previous page is better and therefore it is the suggested revision:

"Additionally, the Oregon and California TMDLs include specific load allocations for TN and TP upstream of the Klamath Hydropower Facilities (see Section 3.2.2.4), which are intended to eventually limit the extensive algal blooms in Copco 1 and Iron Gate Reservoirs and thus decrease chlorophyll-a and algal toxin levels toward the TMDL targets of 10 µg/L chlorophyll-a (growing season average), M. aeruginosa cell density 20,000 cells/L, and microcystin toxin <4 µg/L (see Table 3.2-10)"

Comment 30 - Water Quality

Page 3.2-77: This page contains several sentences referenced to Asarian and Kann (2006a), however the information is not actually stated in the text of the cited report (which focused on nutrients, not temperature), but rather is derived from graphs created from PacifiCorp's water quality model outputs that are included as an electronic appendix to that report. The references should be clarified stating, instead, "data from electronic appendices of Asarian and Kann 2006a".

Here are the three sentences referenced to Asarian and Kann (2006a), with some suggested revisions:

12

Comment 30 cont.

1) "Higher daily fluctuations would also occur in the J.C. Boyle bypass reach because it would no longer be dominated by cold groundwater inputs at a relatively constant temperature of 11-12 C (Kirk et al. 2010, Asarian and Kann 2006a)" suggested revision: change citation to just "(Kirk et al. 2010)" (not necessary to cite Asarian and Kann 2006a).

2) "In the J.C. Boyle peaking reach model results indicate that water temperatures under the Proposed Action would be slightly lower (0.5-1 C [0.9-1.8 F]) than those predicted under the No Action/No Project and would exhibit lower daily fluctuation during June through September (NCRWQCB 2010a, Asarian and Kann 2006a)." The DEIS/DEIR Figure 3.2-3 shows water temperatures at Stateline in the peaking reach and does not indicate a consistent slightly lower overall (i.e. mean) temperature except in October and November, though it does indicate reduced daily fluctuations, i.e. lower maximum and higher minimum temperatures. Modeled mean temperatures are actually very similar between the two scenarios, with the No Action/No Project being generally very slightly lower (<0.5 C) in June –September, as illustrated in the following figure (generated from the data in the Asarian and Kann 2006a electronic appendix):

Stateline, KRWQM Outputs, Year 2000

13

Comment 30 cont.

The suggested revision is : "In the J.C. Boyle peaking reach model results indicate that water temperatures under the Proposed Action have lower daily maximums (0.0-2 C [0.0-3.6 F]) than those predicted under the No Action/No Project and would exhibit lower daily fluctuation during June through September (NCRWQCB 2010a) (Figure 3.2-3)."

3) "In the Klamath River downstream of the J.C. Boyle bypass and peaking reaches, TMDL model results indicate that water temperatures under the Proposed Action would be slightly lower (0.5-1C [0.9-1.8F]) than those predicted under the No Action/No Project and would exhibit lower daily fluctuation during June through September (NCRWQCB 2010a, Asarian and Kann 2006a; Figure 3.2-3)."
This is confusing. What is meant by "In the Klamath River downstream of the J.C. Boyle bypass and peaking reaches..."? Stateline (the location shown in cited Figure 3.2-3) is in the Peaking Reach. This should be clarified. Model results from Stateline would be a good approximation for the whole peaking reach (from the Boyle Powerhouse down to the upper end of Copco Reservoir) but the difference in temperature between the scenarios will be quite different between Stateline and downstream at Copco Dam and Iron Gate Dam due to the thermal mass of the reservoirs. For Copco Dam and Iron Gate Dam, it would be much better to use Figure 3.2-4 or Figure 3.2-5. Again, the citation of Asarian and Kann (2006a) is not necessary here.

Comment 31 - Water Quality

Page 3.2-100: The discussions how TN and TP would change with the removal of Boyle Reservoir should also reference some field data in addition to the TMDL modeling results. While there have been no in-depth empirical analyses of the effect of Boyle Reservoir, the effect can be inferred from comparing concentrations above/below the reservoir. For example, see Figure 4-4 PacifiCorp (2006a) showing TN and TP above/below Boyle Reservoir, and the PacifiCorp (2006a) statement that "Because of the short residence time, lack of stratification, and limited photic zone, the observed concentrations of total inorganic nitrogen (TIN), total nitrogen (TN), orthophosphate (PO4), and total phosphorus (TP) in outflowing waters from the reservoir are similar to those in inflowing waters (Figure 4-4), indicating the J.C. Boyle reservoir has no substantial effect on nutrients". Or just refer to Appendix C, which includes this statement: "In J.C. Boyle Reservoir (RM 224.7), the furthest upstream reservoir in this reach, concentrations of TN and TP measured between the inflow and outflow are typically similar, likely due to the shallow depth and short residence time characteristic of this impoundment (PacifiCorp 2006), indicating that relatively little nutrient retention occurs in this reservoir"

Comment 32 - Water Quality

Page 3.2-103: *"The TMDL model does not include denitrification as a possible nitrogen removal term in riverine segments (Tetra Tech 2009), meaning that TN*

14

Comment 32 cont.

concentrations under the Proposed Action (but also the No Action/No Project Alternative) may be slightly overpredicted."
This is understating the issue. For example, using data from 2005-2008 Asarian et al. (2009) calculated that the TN retention in the Iron Gate to Seiad reach was ~15% (of inflow load) for the June-October period, whereas the TN retention predicted by the TMDL model for that same reach was 0% in June-October of 2000 (see table 3 in Tetra Tech 2009). Additionally, here is an excerpt from Asarian et al. (2009):
"For example, in the July-September periods of 2007-2008, flow-weighted average TN concentrations decreased from 1.055 mg/L at Iron Gate to 0.388 mg/L at Orleans, a decline of 63%. Of that 63% decline, 65% was due to dilution and 35% due to retention. The percent reductions in concentration due to retention were lower for phosphorus parameters and ON than for TN, but higher for TIN. These results have important implications for Klamath River water quality computer models, because under-representation of natural retention processes in a model could substantially over-estimate nutrient concentrations in the lower Klamath River. For example, in the Iron Gate to Seiad TN example cited above, a dilution-only (no retention) model would predict an Orleans concentration of 0.620 mg/L, 60% higher than the measured value of 0.388 mg/L."

Therefore, the suggested revision is to remove the word "slightly" from the DEIS' sentence.

Comment 33 - Water Quality

Page 3.2-103: *"TMDL model results indicate that while resulting TP levels would meet the existing Hoopa Valley Tribe numeric water quality objective (0.035 mg/L TP) at the Hoopa reach (≈RM 45–46) of the Klamath River, TN levels would continue to be in excess of the existing objective (0.2 mg/L TN) (NCRWQCB 2010a)."*

It is important to interpret these model results in the context of the model's underestimation of nitrogen retention. Therefore, the suggested revision is: "TMDL model results indicate that while resulting TP levels would meet the existing Hoopa Valley Tribe numeric water quality objective (0.035 mg/L TP) at the Hoopa reach (≈RM 45–46) of the Klamath River, TN levels would exceed the existing objective (0.2 mg/L TN) in some months (NCRWQCB 2010a). However, as noted previously, TN concentrations in the model may be over-predicted and therefore the Hoopa Valley Tribe objective may in fact be met."

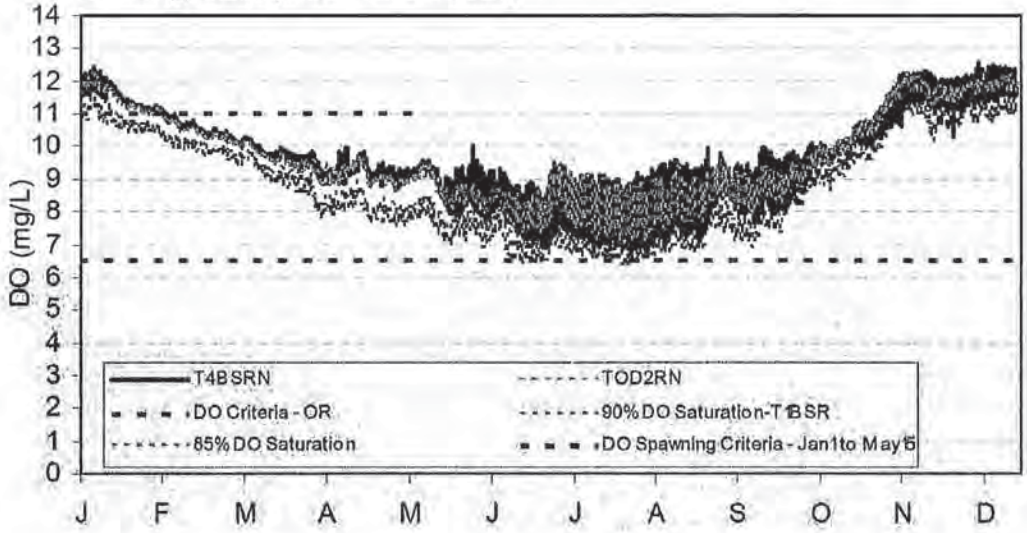
Comment 34 - Water Quality

Page 3.2-104: *"The Klamath TMDL model (see Appendix D) also predicts that daily fluctuations in dissolved oxygen at these locations during this same period may be greater under the Proposed Action (TCD2RN) than the No Action/No Project Alternative (T4BSRN), a condition potentially linked to greater periphyton biomass and associated daily photosynthetic swings in oxygen production in the free flowing river."*

15

Comment 34 cont.

That sentence in an incorrect summarization of the model results, because while the statement is correct for the below J.C. Boyle Dam site, it is incorrect for Stateline. The model predicts the opposite for Stateline: daily fluctuations are less under the Proposed Action (TCD2RN) than the No Action/No Project Alternative (T4BSRN). The figure presented in the DEIS/DEIR for Stateline D.O. is somewhat blurry. The following extraction of the TMDL figure (from NCRWQCB 2010a Appendix 7) shows it more clearly:



Interestingly, the TMDL model does predict increased periphyton biomass for the Proposed Action (TCD2RN), presumably due to slightly less trapping of nutrients and organic matter in J.C. Boyle Reservoir under a free-flowing condition. Thus, the prediction of decreased D.O. fluctuations under the Proposed Action (TCD2RN) is likely due to the lack of hydropower peaking, not increased periphyton biomass. Note: the TMDL model does not incorporate scour into the mechanisms governing periphyton growth, so it likely over-estimates periphyton growth with peaking. In summary, the suggested revision for the sentence quote above is:

"The Klamath TMDL model (see Appendix D) predicts that daily fluctuations in dissolved oxygen directly downstream of J.C. Boyle Dam would be larger during this same period under the Proposed Action (TCD2RN) than the No Action/No Project Alternative (T4BSRN) (Figure 3.2-16), presumably due to the removal of the reservoir. In contrast, the TMDL model predicts reduced daily fluctuations in dissolved oxygen at Stateline in the peaking reach under the Proposed Action (TCD2RN) than the No Action/No Project Alternative (T4BSRN) (Figure 3.2-16), likely due to the lack of hydropower peaking."

Comment 35 - Water Quality

Page 3.2-110: This paragraph about the Klamath TMDL modeling results is confusing because it is unclear which locations are being referred to. The first sentence states "*immediately downstream of Iron Gate Dam*" but then refers to four figures that span from Iron Gate to about the Trinity River. Also, mention of the Hoopa WQ standards should be limited to the river on the Hoopa Reservation, not to other places on the Klamath (it is currently ambiguous what is being referred to).

Comment 36 - Water Quality

Page 3.2-112: "*The increased daily fluctuations in dissolved oxygen immediately downstream of Iron Gate Dam predicted by the PacifiCorp and Klamath TMDL modeling efforts are not entirely certain; the role of photosynthesis and community respiration from periphyton growth in the free-flowing reaches of the river replacing the reservoirs at the Four Facilities is unknown because nutrient cycling and resulting rates of primary productivity under the No Action/No Project Alternative are uncertain (see Section 3.4, Algae)*"

This statement is unnecessarily uncertain (the directionality of the effect is near-certain, it is the precise magnitude that is uncertain). Nothing is entirely "certain" but it is highly likely that predictions of increased intra-day and inter-day fluctuations will occur following dam removal are correct. The reasons are logical and well-supported by available data (modeling not required). Currently, water immediately below Iron Gate Dam reflects water discharged from depths of approximately 4.0 to 6.4 m below the water surface (see footnote on page 58 of Kann and Asarian 2007) where intra-day D.O. fluctuations are dampened because most of the phytoplankton biomass (and hence photosynthesis and respiration), occurs closer to the reservoir surface (see Figure 41 in Kann and Asarian 2007 on page 68).

As the water flows downstream, intra-day D.O. dynamics are then dominated by periphyton and macrophytes, which exhibit a strong intra-day signal. Within some relatively short distance (exact distance unknown due to lack of data between Iron Gate and the Shasta River, but it is no further downstream than above the Shasta River) the reservoir's muting effect on intra-day D.O. is entirely overwhelmed by the river dynamics.

Under a dam removal scenario, there are no reservoirs, so the river at Iron Gate would have tens of miles of river upstream with strong intra-day influences on D.O. Therefore, regardless of changes in nutrient cycling, the river at Iron Gate Dam would exhibit a river D.O. signal with higher intra-day fluctuations, rather than the current reservoir-dampened signal. Note: increased *inter-day* D.O. fluctuations at Iron Gate with dam removal are due to the lack of the reservoir's thermal buffering effect (D.O. saturation is strongly affected by water temperature). We suggest revising the first half of the sentence to read: "The magnitude of the increased daily fluctuations in dissolved oxygen immediately

Comment 36 cont.

downstream of Iron Gate Dam predicted by the PacifiCorp and Klamath TMDL modeling efforts are somewhat uncertain..." and deleting also "potentially" from "...the Proposed Action would cause long-term increases in summer and fall dissolved oxygen in the lower Klamath River immediately downstream of Iron Gate Dam, along with potentially increasing daily variability."

Comment 37 - Water Quality

Page 3.2-113: The discussion of how the Proposed Action would affect pH in the Upper Klamath Basin and the Hydroelectric Reach is incomplete and misses the "big picture" because it is all about how pH will change in the reaches that are current free-flowing river reaches. There is no explicit discussion of how pH will change in the reaches *that* are currently reservoirs. In our opinion, this is just as important and worthy of mention. Dam removal would eliminate the extremely high pH that occurs in the surface waters of the Iron Gate and Copco Reservoirs during peak summer blooms. We recommend that a discussion of this topic be added. Information about high pH in the reservoirs can be found in Asarian et al. (2009) and in PacifiCorp's annual water quality monitory reports by Raymond (various years). For example, Figure 7 in Asarian et al. (2009) shows pH >9 at the surface of Iron Gate Reservoir (note: variation in the time of day that measurements were take confounds detailed interpretation; however, the data do document the presence of very high pH):

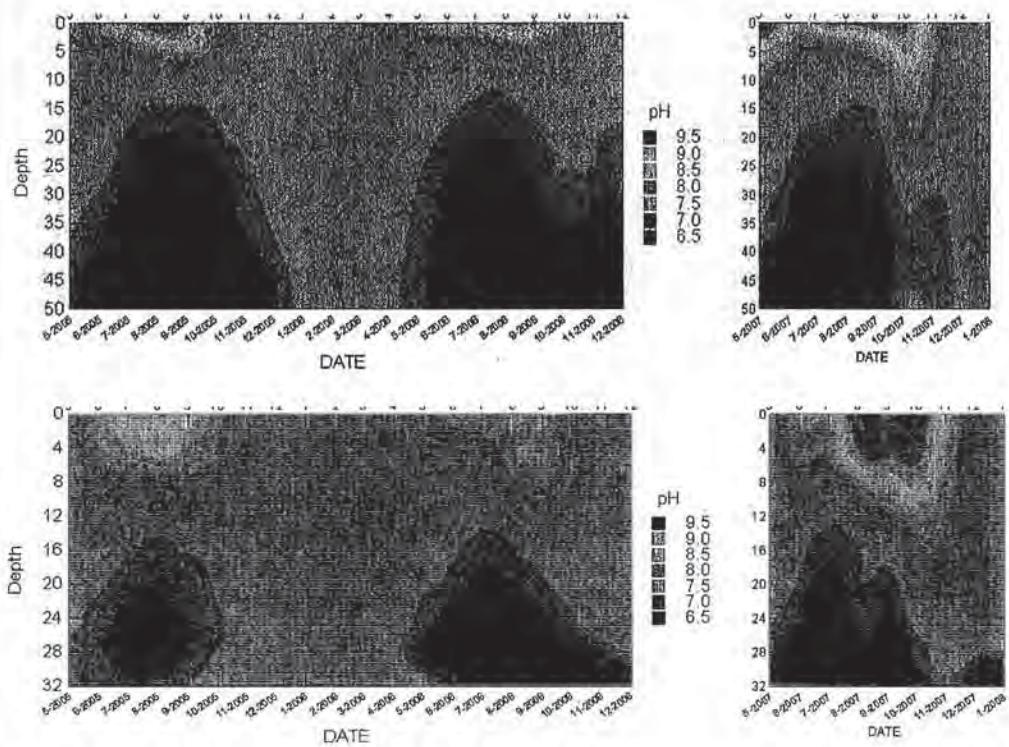


Figure 6 in Asarian et al. (2009) shows pH >9 at the surface of Copco Reservoir:

Comment 38 - Water Quality

Page 3.2-113: The conclusion that "*Under the Proposed Action, the short-term (<2 years following dam removal) and long-term (2–50 years following dam removal) decrease in high summertime daily pH fluctuations in the Hydroelectric Reach would be beneficial.*" is not supported by Figure 3.2-23, which shows increased (not decreased) intra-day variability under the Proposed Action in the summer at Stateline (and nearly no change directly below J.C. Boyle Dam). Also, as noted in the previous comment, there is no mention of how pH will change in the reaches that are currently reservoirs. Therefore, we recommend that the sentence be changed to "Under the Proposed Action, the short-term (<2 years following dam removal) and long-term (2–50 years following dam removal) decrease in high summertime daily pH fluctuations in portions of the Hydroelectric Reach, such as the J.C. Boyle Peaking Reach and the surface waters of Copco and Iron Gate Reservoirs, would be beneficial."

Comment 39 - Water Quality

Page 3.2-117: While mostly correct, the following statement is misleading because it overstates the risk of toxin export from UKL: "*While algal toxins and chlorophyll-a produced in Upper Klamath Lake may still be transported into the Hydroelectric Reach at levels exceeding water quality objectives for Oregon and California, additional in situ production of the toxins and chlorophyll-a associated with suspended algae would be significantly less likely to occur in the free flowing river under the Proposed Action.*"

We are not aware of any evidence that algal toxins are being exported from UKL at levels that exceed WQ objectives for California or Oregon (high chlorophyll from UKL is mostly from *Aphanizomenon*). The highest levels of toxins in UKL are in the northern part of the lake, or in Agency Lake. Therefore, this sentence should be expanded and revised: "While algal toxins and chlorophyll-a produced in Upper Klamath Lake may still be transported into the Hydroelectric Reach, currently available data indicates that the concentration of microcystin toxin leaving Upper Klamath Lake has rarely, if at all, exceeded levels that would exceed water quality objectives for California and Oregon. Under the proposed action, additional in situ production of the toxins and chlorophyll-a associated with suspended algae would be significantly less likely to occur in the free flowing river under the Proposed Action."

Comment 40 - Water Quality

Page 3.2-125: "*3.2.4.3.2.9 East and West Side Facilities: Decommissioning the East and West Side Facilities could cause adverse water quality effects. Decommissioning of the East and West Side canals and hydropower facilities of the Link River Dam by PacifiCorp as a part of the KHSA will redirect water flows currently diverted at Link River Dam into the two canals, back in to Link River. Following*

Comment 40 cont.

decommissioning of the facilities there will be no change in outflow from Upper Klamath Lake or inflow into Lake Ewauna. Therefore, implementation of the East and West Side Facility Decommissioning action would result in no change from existing conditions."

Actually, there could be some subtle slightly beneficial effects on water quality at the mouth of Link River. Although short, Link River is turbulent and well oxygenated. More water flowing through the entire length of the Link River, rather than the canals, could decrease oxygen demand slightly through turbulent breakup/decomposition of algal cells, which could slightly improve dissolved oxygen conditions in Keno Reservoir.

In addition, during times when there are high ammonia levels in UKL (following algal bloom crashes), more water flowing through Link River would allow for more nitrification (conversion of ammonia to nitrate), resulting in slightly reduced concentrations of ammonia entering Keno Reservoir, which could slightly reduce ammonia toxicity in Keno Reservoir. Although water quality dynamics in Link River have not been studied intensively, supporting evidence for this phenomenon can be inferred from the Deas (2008) study which found substantial nitrification in the short turbulent river reach between Keno Dam and J.C. Boyle Reservoir.

Comment 41 - Water Quality

Page 3.2-134: Regarding the "Partial Facilities Removal Alternative", the DEIS states that *"Long-term summertime increases in pH would be beneficial for the Hydroelectric Reach and the lower Klamath River from Iron Gate Dam to the confluence with the Scott River."*

This is inconsistent with what is stated for the Proposed Action and needs to be corrected. Increased summer pH is generally not beneficial in the Klamath River.

Comment 42 - Water Quality

Page 3.2-134 This page contains a discussion of the water quality effects of decommissioning the East and West Side Facilities that fails to mention that decommissioning will slightly improve water quality conditions through more rapid decomposition of algal cells and increased nitrification. Details are provided above in the comments regarding a similar section on page 3.2-125.

Page 3.2-135: The sentence contains some erroneous information and requires revision: *"Under the Fish Passage at Four Dams Alternative, the reduction in frequency of J.C. Boyle peaking operations (from daily to weekly) and overall higher flow releases would result in warmer and more variable water temperatures in the bypass reach during summer and early fall, and cooler temperatures in late fall and winter."*

Comment 43 - Water Quality

20

Comment 44 - Water Quality

Comment 43 cont.

Temperatures will be warmer during summer and early fall, but will not be more variable. The cause of the increased temperatures would be increased amounts of warm river water in that reach. The cause of increased variability in the Proposed Action is the lack of thermal mass of J.C. Boyle Reservoir. In Alternative 4, however, the reservoir and its thermal mass are still present so there will be no increased variability (because there will be no mechanism causing increased variability). Therefore, the suggested revision is to delete "...and more variable..."

Page 3.2-135: This sentence is erroneous and requires correction: *"Similar to the Proposed Action, water temperatures in the peaking reach would be slightly cooler and less variable, also due to higher overall flows and the lower frequency of peaking operations at the J.C. Boyle Powerhouse."*

It is true water temperatures in the peaking reach under Alternative 4 will be similar to those under the Proposed Action; however, those effects are mis-characterized here. See comment regarding page 3.2-77, above, for details.

Page 3.2-135: This is erroneous and requires correction: *"Further downstream, at the Oregon-California state line, water temperatures would likely be similar to those under the No Action/No Project Alternative since large temperature effects of the peaking operations do not extend this far downstream."*

Stateline is in the peaking reach. See comments regarding page 3.2-77 above for details.

Comment 46 - Water Quality

Comment 45 - Water Quality

Page 3.2-137: The following passage has three issues that require correction: *"Since Alternative 5 would include no peaking power generation or release of flow for recreation at J.C. Boyle, water temperature effects in the J.C. Boyle bypass and peaking reaches would be the same as under the Proposed Action i.e., warmer and more variable water temperatures in the bypass reach during summer and early fall, and cooler temperatures in late fall and winter; and, slightly cooler and less variable water temperatures in the peaking reach during summer and early fall. Further downstream, at the Oregon-California state line, water temperatures would be similar to those under the No Action/No Project Alternative since large temperature effects of the peaking operations do not extend this far downstream. Within the remainder of the Hydroelectric Reach, effects on water temperature under the Fish Passage at J.C. Boyle and Copco 2, Remove Copco 1 and Iron Gate Alternative would be the same as effects for the Hydroelectric Reach under the Proposed Action."*

The suggested revision is to replace the above excerpt with:
"Since Alternative 5 would include no peaking power generation or release of flow for recreation at J.C. Boyle, water temperature effects in the J.C. Boyle bypass would be the same as Alternative 4, i.e., warmer water temperatures in

Comment 46 cont.

the bypass reach during summer and early fall, and cooler temperatures in late fall and winter. In the peaking reach, water temperatures would be similar to those under the Proposed Action, i.e. decreased daily fluctuation due to the lack of peaking. In the area that is currently occupied by Copco and Iron Gate Reservoirs, temperatures would also be similar to those under the Proposed Action. "

The three issues are discussed in the following text, providing justification for the proposed changes requested above:

1) The effects of Alternative 5 on water temperature in the Peaking Reach will not be the same as the Proposed Action. Temperatures will be warmer during summer and early fall, but will not be more variable. The cause of the increased temperatures is increased amounts of warm river water in that reach (which occurs in both the Proposed Action and Alternative 5). The cause of increased variability in the Proposed Action is the lack of thermal mass of J.C. Boyle Reservoir; however, in Alternative 5 the reservoir and its thermal mass are still present so there will be no increased variability (because there will be no mechanism causing increased variability)

2) The DEIS states "Further downstream, at the Oregon-California state line, water temperatures would be similar to those under the No Action/No Project Alternative since large temperature effects of the peaking operations do not extend this far downstream." This sentence in erroneous (Stateline is in the peaking reach, so the lack of peaking in Alterative 5 will result in different water temperatures than the No Action/No Project Alternative) and duplicative (water temperature effects of the peaking reach were already discussed in the preceding sentence) and thus should be deleted.

3) "Within the remainder of the Hydroelectric Reach, effects on water temperature under the Fish Passage at J.C. Boyle and Copco 2, Remove Copco 1 and Iron Gate Alternative would be the same as effects for the Hydroelectric Reach under the Proposed Action." It should be clarified what is meant by "the remainder of the Hydroelectric Reach", because the effects between Stateline and above Copco Reservoir are different than those at downstream sites (Copco Dam and Iron Gate Dam). Which one is intended here? (the river reach between Stateline and above Copco Reservoir, or further downstream at Copco Dam/Iron Gate Dam?).

Page 3.2-137: This sentence is partially erroneous: *"Under the Fish Passage at J.C. Boyle and Copco 2, Remove Copco 1 and Iron Gate Alternative, long-term (2–50 years following dam removal/construction of fish passage facilities) increases in summer/fall water temperatures and daily fluctuations in the J.C. Boyle bypass*

22

Comment 47 - Water Quality

Comment 47 cont.

reach due to the elimination of hydropower peaking operations would be a significant impact."

Hydropower peaking does not affect the bypass reach. The suggested revisions is to end the sentence with "...in the J.C. Boyle bypass reach due to the increased dilution of consistently cool springs by additional Klamath River water would be a significant impact."

Comment 48 - Water Quality

Page 3.2-137: This sentence about the effects of Alternative 5 on water temperature requires revision: *"Slight decreases in long-term summer/fall water temperatures and less daily fluctuation in the J.C. Boyle peaking reach would be beneficial."* There will be less daily fluctuation in the peaking reach (due to no peaking) under Alternative 5, but there will not be a slight decrease in summer/fall water temperatures. See comments above on Page 3.2-77 for details.

Comment 49 - Water Quality

Page 3.2-137: This sentence about the effects of Alternative 5 on water temperature is erroneous and should be deleted: *"From the J.C. Boyle peaking reach to Copco 1 Reservoir, long-term water temperature effects would be similar to those under the No Action/No Project Alternative (i.e., no change from existing conditions)."* because the peaking reach ends at Copco 1 Reservoir (so there is no "J.C. Boyle peaking reach to Copco 1 Reservoir" separate from the peaking reach). There will be less daily fluctuation in the peaking reach (due to no peaking) under Alternative 5.

Comment 50 - Water Quality

Page 3.2-151 and Page 3.2-152:
These two statements about the effects of the reservoirs on algal-derived (organic) suspended material in the Hydroelectric Reach are somewhat contradictory:

"Continued impoundment of water in the reservoirs could cause short-term and long-term seasonal (April through October) increases in algal-derived (organic) suspended material in the Hydroelectric Reach due to in-reservoir algal blooms." (Page 3.2-151)

and:

"Dam removal could eliminate the interception and retention of algal-derived (organic) suspended material behind the dams and result in long-term increases in suspended material in the Hydroelectric Reach." (Page 3.2-152)

These two statements describe the two opposing effects of the reservoirs on algal-derived suspended material: 1) the settling algal-derived material from upstream sources (as well as settling of in-reservoir growth) and 2) internally-generated (i.e. re-growth) of algal material. There may be some CEQA-specific or NEPA-specific reason to address these items as two separate potential impacts; however, from a common-sense perspective it would seem to make more sense

Comment 50 cont.

to assess the combined effects of these opposing forces and make a judgment about the net effect.

Page 3.2-153: Similar to the comment above regarding the effects of the reservoirs on algal-derived (organic) suspended material in the Hydroelectric Reach, this same issue applies to the Lower Klamath Basin where these two seemingly contradictory statements are made:

"Continued impoundment of water in the reservoirs could result in short-term and long-term seasonal (April through October) increases in algal-derived (organic) suspended material in the KHP reservoirs and subsequent transport into the Klamath River downstream of Iron Gate Dam."

and:

"Dam removal could eliminate the interception and retention of algal-derived (organic) suspended material behind the dams and result in long-term increases in suspended material in the lower Klamath River, the Klamath Estuary, and the marine nearshore environment."

These two statements describe the two opposing effects of the reservoirs on algal-derived suspended material: 1) the settling algal-derived material from upstream sources (as well as settling of in-reservoir growth) and 2) internally-generated (i.e. re-growth) of algal material. There may be some CEQA-specific or NEPA-specific reason to address these items as two separate potential impacts; however, from a common-sense perspective it would seem to make more sense to assess the combined effects of these opposing forces and make a judgment about the net effect.

Comment 51 - Water Quality

Page 3.2-154 *"Continued impoundment of water in the reservoirs could cause long-term interception and retention of TP and TN on an annual basis but release (export) of TP and TN on a seasonal basis"*

This statement overstates the degree to which the reservoirs can increase nutrient concentrations downstream of Iron Gate Dam. Because this section is regarding the Klamath River below Iron Gate Dam, the use of the word "export" implies release of nutrients from the reservoirs into the river downstream (i.e. that nutrient concentrations are higher at some point in time at Iron Gate Dam under current conditions than they would be without the dams/reservoirs). Basically this does not occur for TN (only for TP). So the suggested revision is to change "...release (export) of TP and TN on a seasonal basis" to "...release (export) of TP on a seasonal basis".

Note that earlier on that same page (3.2-154), it is stated that regarding the Upper Klamath Basin (i.e. Hydroelectric Reach) that *"Continued impoundment of water in the reservoirs could cause long-term interception and retention of TP and TN on an annual basis but release (export) of TP and TN on a seasonal basis"*.

24

Comment 51 cont.

In that case it is okay to mention "export" of TN because in that context it signifies release from the reservoir sediments to the reservoir water column (not from the reservoirs into the Klamath River), which does occur and could potentially contribute to in-reservoir algal blooms.

Comment 52 - Water Quality

Page 3.2-155: *"Dam removal and conversion of reservoir areas to free-flowing river conditions could cause long-term increases in dissolved oxygen, as well as increased daily variability in dissolved oxygen, in the Hydroelectric Reach."*

As is noted above on comments regarding page 3.2-104, this statement is not true for the entire Hydroelectric Reach, just parts of it. In particular, the Proposed Action would cause decreased intra-daily variability in D.O. at Stateline (not increased as stated here). This potential effect should be split up into multiple pieces, according to the differing effects by specific location.

Comment 53 - Water Quality

Page 3.2-155: *"Continued impoundment of water at the Four Facilities could result in long-term seasonal and daily variability in dissolved oxygen concentrations in the Klamath River downstream of Iron Gate Dam, such that levels do not meet California North Coast Basin Plan and Hoopa Valley Tribe water quality objectives and adversely affect beneficial uses."*

The impoundment of water in the reservoirs does not contribute to *daily variability* in D.O. below Iron Gate Dam, but it does contribute to decreased overall (i.e. daily mean) D.O. (for example, see Figure 3.2-19 and 3.2-20 in the DEIS/DEIR). In addition, we are not aware of any evidence that the reservoir impoundments have a negative effect on dissolved oxygen on the Hoopa reservation (the only areas where the Tribe's water quality objectives apply); thus, the reference to "and Hoopa Valley Tribe" should be deleted probably be deleted if the intent is to discuss the effects of the dams (however, if it is just to describe generally the conditions in the river then it is fine to leave it in). Therefore, the suggested revision is to either delete "and daily variability" from the sentence, or replace the sentence with "Current dissolved oxygen concentrations in the Klamath River downstream of Iron Gate Dam are adverse, such that levels do not meet California North Coast Basin Plan and Hoopa Valley Tribe water quality objectives and adversely affect beneficial uses. Continued impoundment of water at the Four Facilities could result in continued release of water with low dissolved oxygen concentrations from Iron Gate Dam into the Klamath River, contributing to those adverse conditions, particularly in the immediate vicinity of the dam."

Comment 54 - Water Quality

Page 3.2-156: This sentence appears to be an erroneous near-duplicate (it is very similar to the next row, but reaches some different conclusions) and therefore should be deleted: *"Dam removal and conversion of the reservoir areas to a free-flowing river could cause short-term and long-term decreases in summertime pH in the*

Comment 54 cont.

lower Klamath River, Klamath Estuary, and the marine nearshore environment." The information presented on pages 3.2-115 to 3.2-117 is more correctly described by the next row in the table, which is the Potential Impact "Dam removal and conversion of the reservoir areas to a free-flowing river could cause long-term summertime increases in pH in the lower Klamath River downstream of Iron Gate Dam" with Significance Pursuant to CEQA of "LTS (from Iron Gate Dam to confluence with the Scott River) NCFEC (Klamath River just downstream of Seiad Valley, the Klamath Estuary, and the Marine Nearshore Environment".

There is inconsistency regarding the pH issue in the DEIS/DEIR. In some sections, it is stated that the Proposed Action will increase pH below Iron Gate Dam, whereas in other places it is stated that it will decrease. See comments above regarding page 3.2-67.

Comment 55 - Water Quality

Page 3.2-157: *"Dam removal and conversion of the reservoir areas to a free-flowing river would cause short-term and long-term decreases in levels of chlorophyll-a and algal toxins in the Hydroelectric Reach."*

The changes will be major, particularly for algal toxins (chlorophyll-a will still occasionally be high due to upstream blooms of *Aphanizomenon*). Therefore, the suggested revision is: "Dam removal and conversion of the reservoir areas to a free-flowing river would cause short-term and long-term decreases in levels of chlorophyll-a and substantially reduce or eliminate algal toxins in the Hydroelectric Reach."

Comment 56 - Water Quality

Page 3.2-158: *"Dam removal and conversion of the reservoir areas to a free-flowing river would cause short-term and long-term decreases in levels of chlorophyll-a and algal toxins in the lower Klamath River and the Klamath Estuary."*

The changes will be *major*, particularly for algal toxins (chlorophyll-a will still occasional be high due to upstream blooms of *Aphanizomenon*). Therefore, the suggested revision is: "Dam removal and conversion of the reservoir areas to a free-flowing river would cause short-term and long-term decreases in levels of chlorophyll-a and substantially reduce or eliminate algal toxins algal toxins in the lower Klamath River and the Klamath Estuary."

Comment 57 - Water Quality

Page 3.2-160: *"Decommissioning the East and West Side Facilities could cause adverse water quality effects."*

Nowhere in the DEIS/DEIR is it described how the decommissioning of the East and West Side Facilities cause adverse water quality effects. In fact, as described above in comments on Page 3.2-125, it is likely that decommissioning these facilities would result in a minor improvement to water quality in Keno Reservoir.

26

Comment 58 - Water Quality

Page 3.2-169: The citation for Perry et al. (2011) is missing the OFR number. It should be "2011–1243"

3.3 Aquatic Resources

Comment 59 - Fish

Page 3.3-40 The study results referencing Vanderkooi 2010 are over stated. The Vanderkooi et al 2010 reference is not a report or a study, it is a 2 page fact sheet that was never published.

There was disagreement as to whether microcystin was actually the cause of the lesions. No one has ever reviewed the data or report. Thus, unlike the Klamath River studies where microcystin was found and confirmed directly in fish tissue, the UKL results are highly speculative and have not been confirmed.

Comment 60 - Fish

Page 3.3-40 The sentence describing the bioaccumulation in salmonids leaves out some of the data. The 3 of 7 Chinook salmon livers that were positive for toxin were for September. Samples collected on the 14th and 15th of October also showed that 1 of 7 Chinook livers had a high level of microcystin-RR (121 ppb), and 1 of 15 steelhead livers had a high level of microcystin-LR (152 ppb) , both of which exceeded public health guideline levels.

The October Chinook and steelhead need to be included- especially the steelhead because it is confirming of the Fetcho 2006 detection.

3.4 Algae

Comment 61 - Algae

Page 3.4-2: "quite" should be changed to "quiet" in this sentence: "*Submerged aquatic macrophytes may also be present in quite backwater areas in the Klamath River..*"

Comment 62 - Algae

Page 3.4-4: Reference for elevated pH in UKL:
Kann, J., and V. H. Smith. 1999. Chlorophyll as a predictor of elevated pH in a hypereutrophic lake: estimating the probability of exceeding critical values for fish success using parametric and nonparametric models. Can. J. Fish Aquat. Sci 56: 2262-2270

Comment 63 - Algae

Page 3.4-4: VanderKooi et al. 2011 is cited at several places on this page but is not listed in the references section. Should it be added to the references list, or is this an incorrect citation?

Comment 64 - Algae

Page 3.4-4:
"several occasions" should be changes to "many occasions" in the following sentence:

Comment 64 cont.

"The World Health Organization (WHO) guidelines for exposure to microcystin have been exceeded in Upper Klamath Lake (VanderKooi et al. 2011) and the middle and lower Klamath River on several occasions..."

Comment 65 - Algae

Page 3.4-4: This sentence overstates the abundance of Anabaena in the KHP reservoirs: *"Large Anabaena flos-aquae blooms occur in the Klamath Hydroelectric Project reservoirs, along with M. aeruginosa, and their toxin has been documented in the reservoirs and downstream (Raymond 2009)."*

For example, here are some excerpts from the cited Raymond (2009) document, documenting that *Anabaena* does not have "large blooms" in the reservoirs: "*Anabaena flos-aquae* was present briefly at low abundance." and "Anabaena flos-aquae was observed only in Iron Gate reservoir in 2008. It was largely confined to surface samples, appearing only once in the 8 m integrated sample. It did not appear to collect preferentially at the surface; samples taken at 0.5 m depth typically had greater biovolume than samples collected at the surface. *Anabaena planctonica* was observed in one 8 m integrated sample from Iron Gate reservoir." Additional information on Anabaena in sampling in Iron Gate and Copco reservoir by the Karuk Tribe and PacifiCorp in 2005-2010 can be found in Asarian and Kann (2011). The sentence should be revised accordingly. Anatoxin was only detected once in Iron Gate reservoir in September of 2005 at levels ranging from 20-34 ug/L. (Trina Mackie CA DHS 2005)

Comment 66 - Algae

Page 3.4-5: This sentence is way too simplistic and limited, with no supporting references: *"Periphyton abundance and community composition appears to be controlled in large part by nutrient availability and flow rates, with high flow rates frequently corresponding to low periphyton abundance, and nutrient enrichment corresponding to an increased abundance of Cladophora."*

The recommended revision is to replace that sentence with: "The factors influencing periphyton abundance and community composition are complex and include abiotic factors such as nutrients, substrate, flow velocity, shading, light availability, and water temperature (Biggs 2000), as well as ecological factors such macroinvertebrate grazing that interact with abiotic factors (Powers et al. 2008)."

Full citations:

Biggs, B.J.F. 2000. New Zealand Periphyton Guideline: Detection, Monitoring, and Managing Enrichment of Streams. Prepared for Ministry of Environment. NIWA, Christchurch. Accessed online 11/4/20008 at: .http://www.mfe.govt.nz/publications/water/nz-periphyton-guide-jun00.pdf\

Power, M.E., Parker, M.S., Dietrich, W.E., 2008. Seasonal reassembly of a river food web: floods, droughts, and impacts of fish. Ecological Monographs 78, 263–282.

28

Comment 67 - Algae

Page 3.4-6: *"However; this decreasing trend is interrupted by large blooms of blue-green algae in Copco 1 and Iron Gate Reservoirs (Kann and Asarian 2006, Asarian et al. 2009)."* An additional good reference to add here would be Asarian and Kann (2011):
Asarian, E. and J. Kann. 2011. Phytoplankton and Nutrient Dynamics in Iron Gate and Copco Reservoirs 2005-2010. Prepared by Kier Associates and Aquatic Ecosystem Sciences for the Klamath Basin Tribal Water Quality Work Group.

Comment 68 - Algae

Page 3.4-6: *"Blue-green algae dominate the algal community during the mid-summer to fall months, with large blooms of Anabaena flos-aquae and M. aeruginosa in the reservoirs (Kann 2006, FERC 2007)."*

Actually, *Aphanizomenon* is much more abundant than *Anabaena* (though *Anabaena* is present). Also, neither of the cited documents mentions *Anabaena*. A newly completed report by Asarian and Kann (2011) analyzes the PacifiCorp and Karuk Tribe's 2005-2010 phytoplankton data collected in the Iron Gate and Copco and would be a good citation for this sentence. Additionally, blue-green algal blooms can be large in July (not late summer).

Therefore, the suggested revision is: "Blue-green algae dominate the algal community during the mid-summer to fall months, with large blooms of *Aphanizomenon flos-aquae* and *M. aeruginosa* in the reservoirs (Asarian and Kann 2011)." Full citation:

Asarian, E. and J. Kann. 2011. Phytoplankton and Nutrient Dynamics in Iron Gate and Copco Reservoirs 2005-2010. Prepared by Kier Associates and Aquatic Ecosystem Sciences for the Klamath Basin Tribal Water Quality Work Group.

Comment 69 - Algae

Page 3.4-12: *"As described above for phytoplankton (i.e., blue-green algae), full and successful implementation of Oregon and California TMDLs would decrease nutrients in the Klamath River and would result in decreased spatial extent, temporal duration, and/or biomass of phytoplankton mats."*

Since this passage occurs in the section about periphyton, this sentence should end with "...periphyton mats.", not "...phytoplankton mats."

Page 3.4-12: *"Increases in nutrient availability may also cause a shift in periphyton community composition from that dominated by nitrogen-fixing periphyton species to that dominated by non-nitrogen fixers."*

Comment 70 - Algae

29

Comment 70 cont.

Where is the evidence that would support this conclusion? In order for this to be true (increasing non-nitrogen fixers), climate change would have to increase N more than it increased P (and what are the mechanisms that would cause such a change?). If evidence is not presented, this sentence should be deleted.

Comment 71 - Algae

Page 3.4-14: *"Moreover, dam removal would allow the substantial groundwater resources within this area of analysis to cool water temperatures during the summer months (Hamilton et al. 2010). This would further reduce the suitability of conditions for blue-green algae growth and mitigate for the effects of climate change."*

Are the "substantial groundwater resource" referred to here the springs below J.C. Boyle Dam? These springs are incorporated into the water quality models developed for the PacifiCorp relicensing and TMDL, and are discussed in Section 3.2 of the EIS. Those modeling results indicate that under the Proposed Action, it is the termination of hydropower peaking (not groundwater inflow) that will reduce daily water temperature fluctuations and maximum daily water temperatures in the J.C. Boyle Peaking reach, but that daily mean temperatures will remain very similar (i.e. see Page 3.2-77).

The models do predict summer cooling under the Proposed Action at Copco Dam and Iron Gate Dam, but these temperature effects are due to elimination of the reservoirs' thermal mass, not groundwater inflow. Certainly the springs below J.C. Boyle Dam are currently (and will continue into the future) have important effects on Klamath River water temperature, but the Proposed Action will not have much, if any, effect on those springs. Thus, it is probably not accurate to say that the "groundwater resource" will result in additional cooling of the river under the Proposed Action. Furthermore, the temperature issue is probably not worth even mentioning here because its effect on phytoplankton is so minor relative to the overwhelming effect of the change from stagnant to free-flowing conditions. Therefore, the suggested revision is to delete the two sentences.

Page 3.4-17: These sentences requires some revision: *"Despite the overall increases in absolute nutrient concentrations anticipated under the Proposed Action (see Section 3.2.4.3.2.3 Nutrients – Lower Klamath Basin), the relatively greater increases in Total Nitrogen (TN) may not result in significant biostimulatory effects on periphyton growth. Existing data indicate that the Klamath River is generally N-limited (TN:Total Phosphorus (TP) <10), with some periods of co-limitation by N and P (see also Section 3.2.3.4 and Appendix C, Section C.3.2.1)."*

It is very important here to mention the minor increase in phosphorus because that is the driver of the predicted lack of substantial biostimulatory response. As currently worded, the emphasis is on the fact that TN will increase more than TP, which is actually less important than the fact that TP will only increase a

30

Comment 72 - Algae

Comment 72 cont.

small amount. Also, TN:TP ratios in the Klamath River do not indicate N-limitation, they indicate *the potential* for N limitation. Therefore, the suggested revision is:

"Despite the overall increases in absolute nutrient concentrations anticipated under the Proposed Action (see Section 3.2.4.3.2.3 Nutrients – Lower Klamath Basin), the large increase in Total Nitrogen (TN) may not result in significant biostimulatory effects on periphyton growth because it will be accompanied by only a relatively minor increase in Total Phosphorus (TP). Existing data regarding TN:TP ratios suggest the potential for the Klamath River to be generally N-limited (TN: TP) <10), with some periods of co-limitation by N and P (see also Section 3.2.3.4 and Appendix C, Section C.3.2.1)."

Comment 73 - Algae

Page 3.4-17: These sentences require some revision: *"In addition, N-fixing species dominate the periphyton communities in the lower reaches of the Klamath River where inorganic nitrogen concentrations are low (Asarian et al. 2010). Since these species can fix their own nitrogen from the atmosphere, increases in TN due to dam removal may not significantly increase their biomass, particularly if overall TN increases are less than those predicted by existing models due to implementation of TMDLs and general nutrient reductions in the Klamath Basin."*

The first sentence should be revised to clarify that it refers to existing conditions (change "N-fixing species dominate" to "N-fixing species currently dominate"). The second sentence should mention the very small increase in TP, and be rephrased to avoid saying "their biomass" because species composition could shift with increased TN. Therefore, the suggested revision is to revise the second sentence to read:
"Since these species can fix their own nitrogen from the atmosphere, increases in TN due to dam removal may not significantly increase periphyton biomass in these reaches because it will be accompanied by only a relatively minor increase in TP. In addition, overall TN increases could be less than those predicted by existing models due to implementation of TMDLs and general nutrient reductions in the Klamath Basin."

Comment 74 - Algae

Page 3.4-18: The second sentence here requires some revision: *"As discussed for the lower Klamath River downstream of Iron Gate Dam, periphyton growth under the Proposed Action could be affected by increased nutrient availability following dam removal. However, since the long-term increase in nutrients in the Klamath Estuary would be a less-than-significant impact due to the implementation of TMDLs and KBRA (see Section 3.2.4.3.2.3 Nutrients – Lower Klamath Basin), it is likely that increases in periphyton growth would also be less than significant."*

Comment 74 cont.

It is important to note here that the Klamath estuary is a long distance downstream of Iron Gate Dam, and that much dilution and nutrient retention occurs between two locations.
Therefore, the suggested revision is to replace the second sentence with: "However, since the long-term increase in nutrients in the Klamath Estuary would be relatively small due to the effects of tributary dilution and nutrient retention in the 190 miles between Iron Gate Dam and the Estuary (Asarian et al. 2010), and would be a less-than-significant impact due to the implementation of TMDLs and KBRA (see Section 3.2.4.3.2.3 Nutrients – Lower Klamath Basin), it is likely that increases in periphyton growth would also be less than significant."

Appendix C Water Quality Supporting Technical Information

Comment 75 - Water Quality

Page C-29: The sentence *"Only minor increases in ammonia (0.05–0.1 mg/L) have been observed to occur in Copco 1 and Iron Gate Reservoirs, most often during October and November (Kann and Asarian 2005, 2007)."* could be mis-interpreted to be about ammonia inside the reservoirs, whereas it is actually intended to be about the river stations above and below the reservoirs. Therefore, it should be revised to "Only minor increases in ammonia (0.05–0.1 mg/L) have been observed to occur between above Copco 1 and below Iron Gate Reservoirs, most often during October and November (Kann and Asarian 2005, 2007)."

Comment 76 - Water Quality

Page C-31: This sentence requires correction: *"Ratios of TN to TP (TN:TP) measured in the Klamath River suggest that the system is generally N-limited with some periods of co-limitation by N and P."*

TN:TP ratios in the Klamath River do not indicate *N-limitation*, they indicate the *potential for N limitation*. The following common-sense analogy is a helpful illustration of this idea: if one person is in a room where there are 500,000 hot dogs and 50,000 buns, which food resource is limiting growth of that person, hot dogs or buns? (neither). Therefore, the suggested revision is "Ratios of TN to TP (TN:TP) measured in the Klamath River suggest the potential for the system to be generally N-limited with some periods of co-limitation by N and P."

Page C-57: Statement regarding 2009 microcystin being below 1 ug/L in free-flowing river sites is incorrect for the section below IG to Klamath-- there were numerous exceedances of both 1 ug/L and the 8 ug/L public health level. In fact this is noted on the next page C-58:

"Additional public health advisories were issued in 2009 and 2010 in Copco 1 and Iron Gate Reservoirs, as well as downstream locations in the Klamath River (including locations on the Yurok Reservation), for microcystin levels in ambient and/or freshwater mussel tissue (Kann et al. 2010a, Kann et al. 2010b, Fetcho 2010). "

Comment 77 - Water Quality

32

Comment 77 cont.

See page. C-60 also.

Comment 78 - Water Quality

Page C-58: *"the majority of exceedances occurred in the reservoirs"* Although true, the wording minimizes the fact that microcystin and *Microcystis* levels have consistently exceeded public health advisory levels for riverine sites downstream of the reservoirs as well (Kann and Courm 2007; 2009; Kann et al. 2010).

Page C-61: Again the statement regarding 2009 microcystin being below 1 ug/L in free-flowing river sites is incorrect for the section below IG to Klamath . This is not consistent with the data. From P C-62 on following page:

"As described for the Klamath River from Iron Gate Dam to the Salmon River (Section C.6.2.1), there have been numerous exceedances of public health guidelines in the Klamath River from the Salmon River confluence to the Klamath Estuary, particularly in 2010. Public health advisories were issued in 2009 and 2010 in this reach (including locations on the Yurok Reservation) for elevated microcystin levels in ambient and/or freshwater mussel tissue samples (Kann et al. 2010a, Kann et al. 2010b, Fetcho 2010). In addition, substantial bioaccumulation (exceeding public health guidelines) of microcystin in freshwater mussels has been shown in this reach (Kann 2008, Kann et al. 2010b)."

The statement above regarding exceedances in the reservoir vs. the river along with the citations to Watercourse 2011 regarding 2009 levels are misleading in that they imply that public health levels are rarely exceeded for the river below Iron Gate. This is clearly not the case.

Comment 79 - Water Quality

Appendix D Water Quality Environmental Effects Determination Methodology Supplemental Information

Comment 80 - Water Quality

Page D-6: Footnote 4 under Table D-2 describes the hydrology used in the TMDL water quality model. Mention should be added that hydropower peaking in the J.C. Boyle Peaking Reach was not included in the TOD2RN, TCD2RN, and T1BSR scenarios (please first verify that with TetraTech to confirm it is correct).

NEW WATER QUALITY REFERENCES CITED

Note: if a document we cited above in our comments is already included in the reference lists in the DEIS/DEIR, it is generally not repeated here. In some cases however we include a reference here even though it may exist already in the DEIS/DEIR (to save ourselves the time of looking through all the various reference lists in the DEIS/DEIR).

Asarian, E. and J. Kann. 2011. Phytoplankton and Nutrient Dynamics in Iron Gate and Copco Reservoirs 2005-2010. Prepared by Kier Associates and Aquatic Ecosystem Sciences for the Klamath Basin Tribal Water Quality Work Group.

Biggs, B.J.F. 2000. New Zealand Periphyton Guideline: Detection, Monitoring, and Managing Enrichment of Streams. Prepared for Ministry of Environment. NIWA, Christchurch. Accessed online 11/4/20008 at: http://www.mfe.govt.nz/publications/water/nz-periphyton-guide-jun00.pdf\

PacifiCorp. 2004. Final License Application for the Klamath River Hydroelectric Project (FLA). Filed with the Federal Energy Regulatory Commission on February 25, 2004. PacifiCorp,Portland, OR. 7000 p.

Power, M.E., Parker, M.S., Dietrich, W.E., 2008. Seasonal reassembly of a river food web: floods, droughts, and impacts of fish. Ecological Monographs 78, 263–282.

Comment 81 - Hydrology

3. **Hydrology and Aquatic Resource Comments on EIS/EIR for Facilities Removal:**

Page 2-16 and 2-19: Exceedance graph is inaccurately described. Sorting by exceedance across timesteps yields an inaccurate picture of flows. It is extremely inaccurate to say that linking together independently sorted 10% exceedance flows across timesteps represents a "wet" year, or in fact any year that was modeled (this is less of a problem for drier year flows because they have less variation in magnitude and timing). In fact, because the highest flows of the year often vary in time of occurrence, the higher exceedance flows often over represent the time duration of high flows. The exceedance flows are derived independently for each timestep, therefore it is incorrect to link them together in a line graph. Change title of graph to: "10, 50 and 90% exceedances of modeled flows for proposed action." This error could have far-reaching consequence in analysis of modeled sediment loads, etc.

Comment 82 - Hydrology

Page 2-19: the flows that were analyzed as part of the Proposed Action are NOT according to E-5 of the KBRA. The flows for the proposed action are found in Chapter 6 of the Hydrology and Sediment Technical Report. Even in this report, there is no place where the projected flows are put in a form conducive to analysis (i.e. a table with flows in cfs at Iron Gate Dam for all the years and timesteps of the modeling that was performed). Figure 6-14 has the flows presented graphically, a table containing the data that went into this graph would be most helpful. This would facilitate a comparison between historic flows, flows in E-5 of the KBRA, etc.

Comment 83 - Hydrology

Page 2.19: Footnote 2:

"Minimum flows may change in the future. Hydrologic modeling assumed that the Drought Plan would include a minimum flow of 800 cfs (DOI 2011). The final Drought Plan or future ESA actions could change the minimum flows; however, these assumptions reflect the best available information at the time of the modeling."

Statement on flows above is far too restrictive. In addition to minimum flows, other flows may change in the future (management regime may change).

Comment 84 - Fish

Page 3.3-20 and 21: Please add NMFS eulachon status report (Status Review Update for Eulachon in Washington, Oregon, and California Prepared by the Eulachon Biological Review Team 20 January 2010) as documentation of eulachon information. Provide Belchik/Larson Eulachon paper for documentation.

Larson, Z., Belchik, M. (1998). A preliminary status review of eulachon and Pacific lamprey in the Klamath River Basin. Yurok Tribal Fisheries Program Technical Report. 13pp.

Comment 85 - Fish

Page 3.3-21: Green sturgeon discussion:

1. The geographic boundary between southern DPS green sturgeon (ESA listed), and Northern DPS sturgeon needs to be clearly stated and the fact that the Klamath River is within the geographic range of the northern DPS needs to be clearly stated.
2. The Yurok Tribe has not tagged southern DPS green sturgeon in the Klamath River and the assertion that this is the case in paragraph 3 is false. The Yurok Tribe has tagged green sturgeon in the Klamath river, however; all of which are assumed to be northern dps sturgeon. This assumption is supported by the following evidence (see http://www.yuroktribe.org/departments/fisheries/reportsandpublications.htm);
    a. No sturgeon tagged by the Yurok Tribe have ever been detected in the range of southern DPS sturgeon (primarily San Francisco Bay) despite the presence of numerous receivers that would have detected Klamath River tagged fish if they had ventured there;
    b. No sturgeon tagged in the Sacramento/San Joaquin and/or San Francisco Bay region have ever been detected in the Klamath River.
    c. Southern DPS sturgeon have been detected immediately offshore of the Klamath River, but have not been detected in the Klamath River estuary or mainstem despite the presence of functioning acoustic receivers in the Klamath River estuary.

    Based on available scientific evidence, the Yurok Tribal Fisheries Program strongly concludes that it is exceedingly unlikely, but not impossible, that any southern DPS green sturgeon are present in the Klamath River at any time. Please change the document accordingly.

Page 3.3-48: Improper use of exceedance tables in evaluating suspended sediment risks has caused an overstatement of risk in high sediment release years and understating of low risk years. If the exceedances for given timesteps are evaluated independently (i.e. each timestep has its exceedance independently calculated), then it is improper to join the exceedances together to evaluate a "high" or "low" sediment (or flow) situation. In particular, this improper use of exceedances will significantly overestimate time durations over a given sediment threshold, especially if the timing of peak sediment discharge varies. The EIS/EIR is very unclear how these curves were derived, and this must be clarified.

Comment 86 - Fish

36

Comment 86 cont.

In addition, a "best case" scenario should be added if a "worst case" scenario is evaluated. This will allow for a proper risk-management decision. It is not proper to be "conservative" toward one outcome or another, but the document and analysis should simply present a range of possibilities and their likelihoods according to the best available information.

A remedy for this error might be to determine for each year in the period of record (for the sediment model output) the duration of SSI over a given threshold. From those durations, you could then calculate a 10% exceedance for time spent over that threshold. For example: calculate the number of days for each and every year in the modeled period of record that the river at point X spends over 1000 ppm. Sort the points high to low, and from there, select the 10%, 50%, 80%, time durations over the threshold. Repeat process for other thresholds of interest or relevant to sediment exposure model for fisheries.

The Yurok Tribe raised this point in the administrative draft, but it appears that no corrective action has been taken with regards to this point.

Comment 87 - Fish

Page 3.3-57: One of the effects of raised temperatures during the fall migration is a shift in run timing. A comparison of the peak of fall Chinook salmon entry timing into the Klamath River estuary from the 1930's until today (Yurok Tribal harvest data) shows that the run currently peaks about 3 weeks later than it used to, which coincides nearly exactly with the phase shift of high temperatures due to the presence of the reservoirs. Because the fish now spawn later, they also hatch later, which leads to later outmigration and rearing. The fish now outmigrate during a time of rapidly rising water temperatures, which combined with high spawning densities, overly stable geomorphology from the presence of the dams and steady-state flow management. This creates the "perfect storm" for disease conditions on the Klamath River. It is very likely that the fall temperature increase leads to a "domino effect" situation which exacerbates an already serious disease condition on the Klamath.

Comment 88 - Fish

3.3-58: The data set regarding disease is not long enough to conclude that it has reached a steady-state, as is implied in the analysis of no action (*Based on this scenario, mortality associated with C. shasta and P. minibicornis would be expected to remain similar to existing conditions.*) An equally likely (or possibly more likely) hypothesis is that the disease situation has not yet stabilized, and given the right meteorological conditions, could get much worse in the future under the no action alternative.

Comment 89 - Fish

3.3-63: *"The effect of the No Action/No Project Alternative would be no change from existing conditions for fall-run Chinook salmon in the short and long term."* The decline of Klamath River salmon has been occurring for some time now. The statement on Page 63 implies that the EIS/EIR team has reached the conclusion

37

Comment 89 cont.

that the decline of salmon on the Klamath, and the hydroelectric project's contribution to that decline has halted, and reached equilibrium that will persist into the future. In fact, there are indications that the decline of Klamath River salmon has not yet stabilized. For example fisheries closures due to weak salmon stocks did not take place until the early 2000's, and the prevalence of C. shasta and other diseases has only been quantitatively documented since 2004. Thus we strongly disagree with the conclusion that no action will result in mere continuance of depressed salmon populations on the Klamath, and instead think there is evidence that no action will result in accumulating risk to existing stocks of salmon in the Klamath Basin.

Comment 90 - Fish

3.3-65: (last paragraph) Recommend not using the term "pulse flow" which has a different meaning when used in relationship to water management on the Klamath River. Recommend using the wording: "Under historical, unregulated conditions, a period of higher flows occurred during the spring in the Klamath River and in its tributaries (NRC 2004)."

Comment 91 - Fish

3.3-76: graph must also present "best case" scenario for sediment concentrations expected to result from dam removal. It is unclear how the "worst case" scenario was calculated. Text references the sediment evaluation report, but it is so important that a brief description of the methods used is appropriate. The use of exceedances that are independently sorted for different timesteps and then linked together is entirely inappropriate for a concentration-duration analysis, and this must be changed.

Comment 92 - Fish

3.3-76: it is very unclear how the "worst case and most likely" sediment scenarios were used, and cannot tell form description. If they were done by taking independently sorted sediment level exceedances for the different timesteps and stringing them together (as is implied by the caption), the analysis is deeply flawed, and must be redone. One alternative might be to determine, for each year in the historic record, how long the suspended sediment levels exceeded a certain threshold level, and then rank that, and use that to describe best and worst case scenarios. Use of exceedances will lead to significant and incorrect estimates of time durations over a given sediment concentration level.

Comment 93 - Hydrology/Flooding

Page 3.6-4: The discussion of flood risk under the "no action" alternative needs to be expanded. Any reservoir upstream of a community presents a certain amount of risk of catastrophic failure. In the case of Iron Gate Dam, the dam sustained heavy damage in the 1964 flood, and after the 1997 flood, additional protective measures were required of PacifiCorp from FERC. Specifically, 7 feet were added to the top of the dam as additional protection against overtopping. The emergency drain has never been fully opened and tested for fear that driftwood would keep the gate open and drain the reservoir.

38

Comment 93 cont.

The flood risk presented to downstream communities from the impoundment of tens of thousands of acre-ft of water is never clearly communicated, and in order to fully analyze the difference between no action and action, the flood risk inherent to the no-action alternative must be described.

39

4. Aquatic Resources; Diseases and Parasites

Comment 94 - Fish

3.3-36 *"Fish diseases, specifically the myxozoan parasites Ceratomyxa shasta (C. shasta) and Parvicapsula minibicornis, periodically result in substantial mortality for Klamath River salmonids, (though steelhead are generally resistant to C. shasta)."*

Substantial mortality occurs every year that has been monitored (> 20% annually; True et al. 2010). Suggest changing "periodically" to "regularly". Also change at 3.3-49. In addition, all native salmonids in the KRB are resistant to *C. shasta*, and this is an important fact because it shows how grossly out-of-balance the myxozoan diseases have become in that it is overwhelming the immune systems of co-evolved, resistant fishes. Steelhead are therefore "more resistant" but it is misleading to just say they are resistant because it implies the other species are not. Change throughout the document.

Comment 95 - Fish

3.3-36 *"Ich and columnaris occur episodically, occasionally resulting in substantial mortality (e.g., the 2002 fish kill of juvenile and adult Chinook salmon). The effects of Ich and columnaris are generally not as harmful as the myxozoan parasites, although impacts on juvenile salmonids and other species have not been well studied."*

Ich occurs episodically but columnaris occurs regularly (annually), and the mention of a juvenile fish kill in 2002 associated with Ich and columnaris is in error. Suggest changing to: "Ich and columnaris occasionally result in substantial mortality (e.g., the 2002 fish kill of adult Chinook salmon). The effects of Ich and columnaris are generally not as harmful on a population level as the myxozoan parasites, although impacts on juvenile salmonids and other species have not been well studied."

Comment 96 - Fish

3.3-36 *"Actinospore abundance, a primary determinant of infectious dose, is controlled by the number of infected polychaetes and the prevalence and severity of infection within their population."*

For factual accuracy suggest changing to: "Actinospore abundance, a primary determinant of infectious dose, is controlled by the number of polychaetes and the prevalence and severity of infection within their population."

3.3-49: Need to add sediment (bedload composition and stability) and plankton (high quality food abundance) to the list of variables that affect the abundance of *P. minibicornis* and *C. Shasta* (via the effects on polychaete abundance).

Comment 97 - Fish

Comment 98 - Fish

3.3-58: *"The ongoing presence of the dams under the No Action/No Project Alternative would continue to contribute to the stable, warm habitat conditions that are favorable for polychaetes and for C. shasta and P. minibicornis. The hatchery would continue to operate and discharge its nutrient-rich effluent to the river. Salmon would continue to concentrate below the Iron Gate Dam, where the polychaete hosts are abundant, facilitating the cross infection between the fish and the polychaetes. Based on this scenario, mortality associated with C. shasta and P. minibicornis would be expected to remain similar to existing conditions. If temperatures warm over time with climate change, these infection rates could increase. The No Action/No Project Alternative would result in continued substantial deleterious effects on salmon in terms of fish disease."* (emphasis added)

What is the basis of data or evidence to suggest that disease has reached equilibrium and won't continue to get worse under the No Action/No Project alternative even without global warming?

This assertion is contrary to the apparent trend based on disease indicators since 2005, although, it is too short of time frame to draw firm conclusions. However, there is a logical argument to be made that myxozoan disease will continue to get worse on average overtime under current conditions due to a positive feedback loop.

The positive feedback loop is created by elevated numbers of polychaetes producing a hyper-abundance of actinospores that in turn heavily infects returning adults subsequently producing high numbers of myxospores conveniently concentrated at the top of the area of high polychaete abundance and so the cycle repeats resulting in increasing polychaete infection levels and actinospore abundance over time. Of course there will be annual variation and stochastic events but the overall trend predicted over a 50 year horizon is alarming given current disease levels even absent anticipated future global warming.

Overall we suggest that it is likely that the frequency and severity of years with high disease related morality will increase over the next fifty years under current conditions due to global warming AND the constraints of having the dams and hatcheries still in place along with limited availability of water to create artificial scouring flows of sufficient frequency, duration, and magnitude.

We suggest adding the following change in wording:

"Based on this scenario, mortality associated with *C. shasta* and *P. minibicornis* would be expected to worsen substantially or remain similar to existing conditions."

Comment 99 - Fish

Comment 100 - Fish

3.3-62: *"Under the No Action/No Project Alternative, ongoing hatchery operations would continue to mitigate for habitat lost due to construction of the dam by releasing millions of juvenile and yearling Chinook salmon annually. These fish may compete with the progeny of naturally spawned fish for food and other limited resources, such as thermal refugia, or can increase disease infection rates through crowding. In addition, some adult fish may stray and spawn with wild fish, which can reduce genetic and phenotypic diversity and reproductive success within the wild population (McLean et al. 2003, Araki et al. 2007, Araki et al. 2009, all as cited in Hamilton et al. 2011).*

Suggest changing the sentenced underline above to the following to account for the impacts of hatchery production on myxozoan disease dynamics:

> "These fish may compete with the progeny of naturally spawned fish for food and other limited resources, such as thermal refugia, or can increase disease infection rates through crowding and concentrated release of myxospores on top of the area of highest polychaete densities."

3.3-63: Need to include continued disease mortality of juvenile spring Chinook salmon under No Action/No Project Alternative.

Comment 101 -Fish

3.3-88: *"The Proposed Action would be expected to reduce impacts on salmonids from fish disease. The main factors contributing to parasitic fish disease in the Klamath River include habitat (pools, eddies, and sediment); microhabitat characteristics (stable flows and low velocities); host proximity to spawning areas; and water temperatures greater than 15°C (Bartholomew and Foott 2010)."*

We recommend adding "increased planktonic food sources from project reservoirs" to the above list. Increased planktonic food resources for polychaetes from project reservoirs has been identified by several *C. shasta* collaborative management team members as a probable contributing factor to the hyper-infectious zone below Iron Gate Dam partly due to the stimulating effect of high quality food resources on polychaete abundance.

It is important to note that this issue of planktonic food resources is a separate issue than the effect of nutrient levels on riverine derived food resources. Polychaetes are able to eat a wide variety of food sources from suspended and benthic detritus and micro-organisms, but lipid rich diatoms are an especially valuable food source (Bartholomew and Foott 2010). Polychaetes also eat blue-green algae such as *Microcystis aeruginaso* but the digestibility is unknown and potentially low. Both diatoms and microcystis proliferate in the project reservoirs. The Proposed Action would remove project reservoirs that contribute to this rich food resource, except from continued releases from UKL/Keno Dam, which would shift the planktonic food resource zone upstream

42

Comment 101 cont.

where it would not overlap with a major fish hatchery and an area of concentrated myxospore and actinospore production.

The spatial convergence of dams, hatcheries, plankton from reservoirs, and high myxozoan infectivity has been noted in other rivers such as the Cowlitz (which does not have nutrient problems).

5. **Detailed Plan: Dam Removal Costs and Methods**

Detailed Plan: Dam Removal Costs and Methods

Comment 102 - Costs

Generalized Comments:

There are significant opportunities to reduce the costs associated with Dam Removal. There are many large contingencies budgeted for, and as more information becomes available, it is likely that these costs should go down. The estimates in 2020 dollars are also very sensitive to the estimate of inflation (assumed to be 3%/year), and a sensitivity analysis for this assumption would add clarity.

The add-on cost for mitigation is extremely high for a project of this type, and the reason for this was never made clear. We believe that the mitigation cost should be brought in line with other similar projects (such as Condit, Elwha, etc), which would provide for a more accurate and lower cost estimate.

Comment 103 - Proposed Project/Action

The following specific comments were prepared by Dennis Gathard, P.E. under contract to the Yurok Tribe. Unless otherwise noted, they apply to the Detailed Plan for Dam Removal, which forms the basis for many of the conclusions in the EIS/EIR.

Detailed Plan for Dam Removal – Klamath River Dams, Klamath Hydroelectric Project, FERC License No. 2082, Oregon - California

Page 32 Last para. This paragraph suggests that removal limits are shown in Attachment A. Could not find removal limits on Attachment A.

Page 45, 56 1st para Low level sediment releases immediately after Jan 1 2020 may involve high concentrations of dens sediment. Impacts on generating equipment should be considered in the analysis of the ability to operate Copco 2 for four months. Sediment concentrations experienced at the Condit Dam breach would probably stop operation of downstream equipment.

← Comment 103 cont.

Page 45	2nd para Could not completely understand the strategy for drawdown of the reservoir. Some type of illustration of water levels for the average year inserted in this location would help. That could be coupled with TSS assessments. It appears that the approach would lower the Reservoir Water Surface using the modified tunnel at a rate of 1.1 foot per day. This approach extends the period of high TSS into the spring. A faster approach using rapid notching as the primary means to lower the reservoir would allow the reservoir and TSS effects to reach the bottom faster.
Page 45	2nd para (cont'd) Rapid notching while ignoring the tunnel all together would save the cost of tunnel construction. This would reduce the estimated cost by about $3 million ($960,000 + crane mob construction cost x multipliers)
Page 46, 53, Fig 4.2-1	What is the purpose of the tunnel gate? It is expensive for a one time use. If the rate of lowering with the tunnel wide open does not exceed 3 feet per day then there is no use for the tunnel gate. If the gate only is used to moderate the rate when a notch is cut, why not let the water level fall below the notch before the notch is cut to reduce the overall rate. Why not construct notches quickly down to a low elevation without the requirement to remove 100% of the adjacent concrete?
Page 48	Could Copco 2 power production continue after removal of Copco 1? Would any additional generation add to the $200 m PacifiCorp contribution?
Page 61 on	Cannot find a discussion of the upstream cofferdam in the Iron Gate material. Is the assumption that the cofferdam from dam construction still in place? The cost estimate includes $1.4 million for removal in the wet at $70 per cy while dam removal is much cheaper at around $13 per cy. Could the cofferdam be eroded considering the very small relative volume of material? The over all project cost savings would be $3 million considering the multiplier effects.
Page 125	8.2.2 Why are modifications to upstream fish screens part of this project?
Page 134	The use of 45% for partial removal seems arbitrary and distorts the cost estimate without clear justification for the amount.

Comment 103 cont.

Existing Feature Layout Features (Attachment A)

1. Iron Gate Dam has no elevations, features, or useable details. This makes comparing narrative and schedules to drawings impossible. Please provide clear drawings for evaluation.

Schedule (Attachment C)

Line 13 Open Tunnel in September? Just a test or stays open not indicated. Start of drawdown not indicated until Jan 2, 2020

Line 16 At Iron Gate, can the tailwater cofferdam be constructed in January flows? Would it not be better to do this construction during the low flows in October? This should be possible without project shut down.

Cost Estimates (Attachment D)

1. Could find no consideration of salvage costs for metals such as copper. Concrete, in aggregate starved California, could also have value if crushed. Also no advantage applied for salvage of roller gates for tunnels.
2. The cost for concrete demolition varies between dams from #215 to $315 per cy. Logically the larger removal quantity would actually be less expensive than smaller quantities. However, the large volume of removal at Copco 1 is near the most expensive at $300. As discussed below, the method for computing the overall cost for the project is directly proportional the cost of activities such as concrete demolition. *Means* costs for this activity is similar to the $215 per cy cost. $300 appears too high. Can this be supported?
3. Seeding loads seem excessive. If seeding is too heavy seeds die from over seeding. Seeding levels are 100 times those used for crop production. For instance, rye seeding is 100 lbs per acre. Proposed levels are 10,000 lbs per acre. Means seeding costs including mulch for aerial seeding is about $2,500 per acre. Cost estimates include costs up to $7,500 per acre.
4. The presentation of cost in tables 9-* do not explain that contingencies contained in the costs, which are the 2nd highest cost in the estimate, would be significantly lower if reservoir restoration cost are reduced.
5. Non contract costs, at 65%, need to be better supported. This is the single biggest cost item.
6. Multiplying each cost based on a percentage by the previous cost based on percentage of the actual construction cost results in amplifying the cost of each

Comment 103 cont.

activity. So overall, the Total Construction Cost are 300% of the cost of actual construction activities. Therefore, each dollar for activity costs results in $3 of total construction cost. More logically, the actual cost of mitigation, mobilization, etc. should be used in both complete and partial removal. This has likely inaccurately inflated the cost estimate for dam removal.

7. The cost of roller gate installation at Iron Gate dam is significant. Was a determination made that roller gate construction at the mouth in the dry would not be feasible? The gate would not be required to be a perfect seal. Approximate flow control would be acceptable and construction would be much cheaper.
8. The cost of mitigation for Iron Gate for the partial removal should not be more expensive than for the complete removal but is shown that way so that the partial removal has no significant cost advantage.

6. Broadly Applicable Comments by YTEP

Comment 104 - Envr. Justice

Environmental Analysis and No Action Alternative

In general, the environmental analysis in the EIS/EIR is deficient for all areas regarding the direct, indirect, and cumulative impacts of the No Action alternative. While the current conditions serve as a baseline for analyzing impacts for the other proposed alternatives, there is an inherently flawed assumption throughout the document that a No Action alternative would mean that current conditions would remain unchanged in the future.

For example: a No Action alternative would result in exacerbating and increasing the adverse impacts of the current condition in the following areas: Water Quality, Aquatic Resources, Climate Change, Tribal Trust, Cultural and Historic Resources, Socioeconomics and Environmental Justice. A No Action alternative would:

1. further compound and exacerbate: degraded water quality, environmental conditions favorable to Harmful Algal Blooms (HABs):
2. cause declines of anadromous fish species due to loss and degradation of habitat, increasing vulnerability to Climate Change impacts on water temperatures, flows:
3. cause loss of ecosystem resiliency required to adapt to Climate Change,
4. continue impacts to cultural resources:
5. continue impacts to traditional use areas,
6. continue impacts to Traditional Cultural Properties (TCPs), continued adverse impacts to
7. continue impacts to Tribal Trust Resources (specifically water, fish and TCPs) and

46

Comment 104 cont.

8. continue impacts to tribal member continued and future access to and uses of these resources,
9. continued adverse economic disparities and impacts for tribal communities and the Yurok Tribe's fishery, and the
10. continued and increasing adverse and disproportionate impacts of dam operations on Indian Tribes.

While the document adequately identifies most environmental impacts associated with the other proposed alternatives, the analysis of the No Action alternative and the known and potential outcomes between the proposed Action and other Alternatives is lacking throughout the document. The Environmental Consequences sections should be prepared in a manner that clearly identifies the differences in outcomes between alternatives to inform decision-makers of those differences before selecting a final alternative. Most significantly, the lack of accurate analysis of known and predicted (modeled) outcomes in the No Action alternative leads to a false impression (and even states throughout the document) that a No Action alternative would result only in the continuation of current conditions. A No Action alternative would most certainly result in a continual degradation of the Klamath River ecosystem, the fishery, and increase in the adverse impacts on Yurok Tribal culture, subsistence, economics, and Trust Resources.

It is important to note that no analysis of environmental impacts from the existing operations was ever conducted prior to the construction of the dams, or until the dam relicensing process was initiated in 2002. As a result, current conditions are the result of the long term, cumulative impacts of those dams and dam operations over time. Those conditions have deteriorated over time and there is no reason to believe they will not continue to deteriorate over time if left uncorrected and unmitigated. In fact, scientific models developed for this environmental review process clearly suggest that environmental conditions, and associated environmental impacts, will continue, increase and compound in scale, scope and distribution if the No Action alternative is selected. A thorough and robust analysis of all available information is needed to adequately forecast and project the long term and cumulative impacts of a No Action alternative on all resource areas covered in the document.

Comment 105 - NEPA/CEQA

In many sections, the analysis of proposed alternatives is inaccurately framed with the use of the word "*could*" instead of "*would*" (Sections 3.12 pp 40-42, 3.10 pp 19-20, 3.16 pp 24-37). In most cases, the use of the term "could" is misleading because it is used to suggest an outcome *might* occur when available data and information indicate those outcomes *will* occur under a specific alternative. For example: a No Action alternative would have an adverse impact on Klamath River water quality, aquatic resources, Yurok Tribal Trust Resources/Assets, Yurok Cultural Resources and Traditional Cultural Properties

47

Comment 105 cont.

(TCPs), and Yurok communities and economies. These adverse impacts are real, documented, and unequivocal. The use of language (could instead of would) throughout the analysis sections document implies or suggests that these adverse outcomes might not really occur. Similarly, the positive benefits of the proposed Action (full dam removal and implementation of the Klamath Agreements) on these resources is cast into doubt by the use of this language, particularly for areas where the benefits of the proposed action are measurable and well-documented in the studies conducted for this NEPA process. Better wording is needed to accurately reflect the actual findings of the analysis. If an outcome is likely, or unlikely, then it needs to be noted. If the impacts are known and well documented, then the term "would" needs to replace "could". If the outcomes are speculative, then use of the word "could" or "may" might be justified but as written, the entire document confuses the reader by presenting all alternatives analysis in the ambiguous term of "could" suggesting it might happen, or might not. As a decisional document, this is entirely inadequate and needs to be corrected throughout with the use of more appropriate terminology that captures and reflects the actual likelihood of a specific outcome.

Water Quality: Comment 106 - Water Quality

Current water quality conditions within the Klamath Basin are a result of the long-term management of the watershed. Water quality throughout the Klamath River watershed has deteriorated as a result of current operations and would continue to deteriorate if the No Action alternative were selected. Increased water temperatures would lead to increased adverse environmental and public health impacts such as HABs, degraded fish habitat, and increased vulnerability to Climate Change throughout the watershed. Adequate analysis of the long-term and adverse impacts of the No Action alternative on water quality, water temperatures, water quantity, flow regimes, and water-related pathogens is needed in the EIS/EIR. It cannot be assumed that a No Action alternative would result in the continuation of existing environmental conditions. In fact all scientific evidence from available WQ, fish production and regional Climate Change models indicate that Klamath River water quality will continue to decline if a No Action alternative is selected.

Aquatic Resources: Comment 107 - Fish

The adverse impacts of the dams and operations cannot be adequately analyzed without evaluating how these impacts have increased and compounded over time. The loss of fish habitat and access to habitat for migration, spawning and rearing of anadromous species has had a long-term and adverse impact on population and distribution of species, in addition to their overall viability and existence throughout the entire watershed. The No Action alternative must consider how continued operations without mitigations would impact the long

48

Comment 107 cont.

term survival, viability, populations and distribution of all aquatic resources, particularly salmonids and those already on the Threatened or Endangered (T&E) species list. At what point do specific species or genetic populations simply become extinct, or eligible for listing as T & E species, as a result of the No Action alternative? These questions must be adequately analyzed in the EIS/EIR.

Climate Change 3.10:

Comment 108 - GHGs

While much of the analysis in the EIS/EIR relevant to Climate Change is focused on GHG emissions, it is important that the EIS/EIR also conduct a robust analysis of the impacts of the No Action alternative on the overall resiliency of the entire watershed to respond to the predicted impacts of Climate Change, specifically related to water quality, flows and temperatures. This analysis is entirely lacking in the EIS/EIR. The ability for the Klamath River and surrounding ecosystem to successfully respond to the adverse impacts of Climate Change (ie: changes in hydrology, timing of flows, changes in precipitation and snow pack, increases in water temperature and water-borne pathogens) will be entirely dependent on protecting its overall ecological resiliency and protecting cold water sources and cold water refugia to ensure that adequate water temperatures and flows are maintained. There are many future Climate Change impacts that cannot be mitigated or prevented. This requires that ecosystems and the Klamath River watershed be managed in a way that minimizes and prevents adverse impacts on resources that are vulnerable to Climate Change impacts. A No Action alternative would result in the entire system being more vulnerable to adverse impacts as a result of Climate Change and global warming. These impacts need to be identified and adequately covered in this section of the EIS/EIR for the No Action alternative.

Comment 109 - GHGs

A comprehensive Vulnerability Assessment should have been conducted for this section of the EIS/EIR with a focus on Climate Change impacts and protecting resiliency of the entire ecosystem to respond successfully to those impacts. While existing environmental regulations may require the Green House Gas (GSG) emissions analysis presented in the EIS/EIR, the analysis of Climate Change impacts on the Klamath watershed as a result of the proposed Action and consideration of its alternatives must also be considered and evaluated. The ability of the entire Klamath River watershed and its dependent ecosystems to respond successfully to climate change impacts is dependent on a restored and free-flowing river and the protection and restoration of cold water sources and refugia throughout the basin.

Tribal Trust 3.12:

Comment 110 - ITAs

The Federal government has a legal and moral obligation to protect the Tribal Trust resources of federally recognized Indian Tribes for current and future

Comment 110 cont.

generations. The Tribal Trust section of the EIS/EIR describes different Trust Resources/Assets for each tribe and treats each Tribe individually. What is lacking in this section is an adequate assessment of the long-term and adverse impacts of the No Action alternative on these Tribes and their Trust Resources/Assets.

Comment 111 - ITAs

For the Yurok Tribe, water and fish are clearly recognized as Tribal Trust Resources/Assets. The impact of the No Action alternative on Tribal access to both water and fish, the exercise of tribal rights related to water and fish, and to numerous and irreplaceable Yurok cultural resources and TCPs would be severe and un-mitigatable. A No Action alternative would not result in the status quo, but rather a continued decline in tribal culture, lifeways, social and economic integrity and tribal sovereignty. Testimony provided by numerous Yurok tribal members and officials have stated that continued operations and a No Action Alternative would be devastating to Yurok cultural, spiritual, physical and economic survival. This fact must be adequately expressed within the EIS/EIR.

Comment 112 - ITAs

The potential impacts on Tribal Trust Resources/Assets for each alternative analyzed in the EIS/EIR must include the adverse effects on Tribal members' access to and use of these resources/assets in the effects analysis. For the No Action Alternative the statement (3.12 p 40) that "Continued impoundment of water ***could*** affect Tribal Trust Resources" must be changed to the "Continued impoundment of water ***would*** affect Tribal Trust Resources". This is an undeniable and well-documented fact. To suggest that it might or might not occur as a result of a No Action alternative being selected, is an egregious error and disregards volumes of evidence (historical, ethnographic, and contemporary) filed, provided or referenced in documents submitted in the FERC relicensing process (Sloan 2003, Yurok Scoping comments 2005 and 2006, FERC DEIS comments 2007, FERC EIS 2007) by the Yurok Tribe. Further, the continued use of this misleading language does not accurately capture the information provided and findings made in the reports prepared for this NEPA process (Sloan 2011, DOI 2011).

Cultural and Historic Resources 3.13:

Comment 113 - Cultural Resources

The Yurok Tribe has identified numerous Traditional Cultural Properties (TCPs) and Yurok cultural resources and cultural use areas throughout the Area of Potential Effect (APE) that have been adversely impacted as result of the construction and past/current operations of the dams in the Klamath Hydroelectric Project. None of these adverse impacts were identified, considered or mitigated when the dams were constructed or over the years of their continued operations. To-date a thorough review, as required by the National Historic Preservation Act (NHPA), has been conducted for the Yurok Reservation and surrounding Yurok Ancestral Territory. Consultation with the Yurok Tribal

Comment 113 cont.

Heritage Preservation Office (THPO) has been inadequate and late in the process, yet Concurrence on a final Determination of Effect and any subsequent mitigations of an Adverse Effect is required from the from the Yurok THPO (Mr. Robert McConnell) in order to complete NHPA compliance for this process.

Comment 114 - Cultural Resources

A No Action alternative would result in continued, increased, and cumulative adverse impacts to Yurok cultural resources, particularly to Yurok TCPs within the APE. For cultural resources in particular, it is critical that any analysis recognize that current conditions are adverse impacts (direct, indirect and cumulative) and to-date have gone unaddressed and unmitigated. A No Action alternative must be considered an Adverse Effect under the National Historic Preservation Act (NHPA) even if the existing operations were built before NHPA was enacted and Section 106 compliance became a requirement for all federal undertakings and actions subject to NEPA. Adequate analysis of the impacts of a No Action alternative on Yurok cultural resources is needed in this section and current conditions cannot be assumed to have no adverse effect on these irreplaceable resources.

Comment 115 - Cultural Resources

In general, it is important to note that while the lowering of the water levels within the reservoirs will likely result in the exposure or archeological sites and burial sites, the current approach to cultural resources management is to encourage *in situ* protection (ie: protection in place) as opposed to archeological data recovery and analysis as mitigation of an adverse effect. Techniques such as cap and fill to protect these resources, in place, should be explored and considered in the NHPA compliance process.

Comment 116 - Cultural Resources

The impact on Traditional Cultural Properties (TCPs), cultural use areas and culturally significant resources other than archeological or burial sites, needs to be better analyzed in this entire section. The Yurok Tribe has numerous gathering places and fishing places that have suffered adverse effects as a result of the past construction and operations of the dams, and those adverse effects continue as a result of current operations. NHPA and NEPA do not simply require the analysis of impacts on archeological resources, but all culturally significant resources important to Yurok lifeways and culture. In this regards, this entire section is deficient, as it is overly focused on archeological resources without considering other resources also protected and requiring analysis under NHPA and NEPA.

The 2007 study by renowned NHPA expert, Dr. Thomas King, determined that the entire Klamath River was a potentially eligible TCP as the "Klamath Riverscape" (King 2004). This study was conducted for the FERC relicensing NEPA process and has been provided to the governmental and consulting staff involved in preparing this section of the document and in substantial comments prepared and submitted on the Cooperating Agency draft issued in 2011, yet it

51

Comment 116 cont.

has again been disregarded in this public draft of the EIS. It is imperative that the King (2004) report and its findings be included in this analysis of impacts to Cultural and Historic Resources. Further, key sources, such as T.T. Waterman's Yurok Geography (1920) must be utilized in the sections specific to the Yurok Tribe, in addition to information provided (Sloan 2003, King 2004, Sloan 2011) and information provided through consultation with the Yurok THPO specific to Yurok TCPs and impacts on those TCPs resulting from the No Action and other alternatives analyzed in this EIS/EIR. There are significant Yurok Cultural Resources within the Area of Potential Effect (APE) evaluated under NHPA for this process yet, these resources and potential impacts resulting from any of the alternatives, remains unexamined in the EIS/EIR. Rather, the entire section does not deal with the full scope of potential impacts on numerous eligible/potentially historic properties, including TCPs, within the APE but instead focuses only on those within the lands surrounding the reservoirs. This is wholly inadequate for NHPA compliance purposes and must be corrected to include the entire APE and all eligible types of historic properties, not simply archeological and burial sites.

Socioeconomics 3.15

Comment 117 - Economics

This section of the EIS/EIR is fairly robust when identifying and analyzing the economic impacts of all other alternatives but the No Action alternative. The socio-economic consequences of the No Action alternative must include analysis of the adverse impacts to communities, local economies, fishing industries (tribal and non-tribal) and employment resulting for a continued decline in the Klamath fishery and throughout the region. For the Yurok Tribe, many tribal households rely on the economic benefit from participating in the commercial fishery and also rely on the subsistence fishery as a means for supplementing their family food supply, particularly in tough economic times. The collapse and decline of the Klamath fishery has had disproportionate adverse impacts on Yurok tribal households and as a result, on the Yurok Tribe. A No Action alternative would result in an increased loss of economic benefit from the Klamath River fishery for tribal households. As the environmental conditions within the watershed continue to decline, so will the economic opportunities that the Yurok fishery provides to tribal members in terms of food sources used for subsistence and those harvested for commercial purposes and individual economic benefit.

Comment 118 - Envr. Justice

Further, this section fails to adequately identify and analyze the very disproportionate and adverse impacts on the Yurok Tribe if a No Action alternative were selected. Yurok culture and society revolve around the Klamath River. The ecological health of the River and its resources has direct physical, spiritual, and psychological impacts on Yurok Tribal members and their sense of well-being and identity. This fact cannot be overstated. A No Action alternative must thoroughly examine the unique Yurok relationship and dependence on the Klamath River and a healthy Klamath River ecosystem with adequate water and

52

Comment 118 cont.

aquatic resources to not only meet the needs of current Yurok but also adequate resources to meet the needs of all future generations of Yurok, as required by the federal government's Trust Responsibility.

This section focuses too much on the economic impacts and does not adequately analyze the social impacts of the proposed alternatives, particularly on Indian Tribes and those like the Yurok tribe with a recognized fishing right.

Environmental Justice 3.16

Comment 119 - Environmental Justice

The statement in Section 3.16.4.2 on the Effects Determination for the No Action alternative must be changed to: "Continued impoundment of water at the reservoir and decline in fisheries ***would*** disproportionately and ***adversely*** affect tribal people". It is entirely inadequate to frame this issue of environmental justice and the Klamath Hydroelectric Project as having anything but an absolute, adverse and disproportionate impact on Indian Tribes, specifically on the Yurok Tribe. The EIS/EIR appears to evade the Environmental Justice issues resulting from a No Action alternative (and the existence and operations of the dams) by attempting to frame these impacts as possible rather than actual. The use of the term "could" instead of "would" recurs throughout the analysis portions of this section of the EIS/EIR and is entirely misleading. These are absolute and likely outcomes, not simply possible ones and erroneously suggest or imply that a No Action alternative may not be an Environmental Justice problem, when it clearly would be.

The Yurok Tribe and other Tribes have provided extensive evidence and testimony (FERC EIS and DEIS Comments filed by the Yurok Tribe 2007) to support their assertion that the dams, their construction and operations (and any alternative other than full dam removal and implementation of the Klamath Agreements) have been, and continue to be, serious Environmental Justice issues requiring adequate analysis, consideration and response by the federal government and its agencies.

The EJ issues resulting from a No Action alternative are extreme and unequivocal. There is no "maybe" about it. The dams and the environmental, cultural and socioeconomic impacts resulting from their construction and operation expose a long history of environmental in-justices resulting from past management decisions. The only way to resolve these EJ impacts and issues is to select full dam removal and implementation of the Klamath Agreements. A No Action alternative would result in ongoing and compounded Environmental Justice issues for Indian Tribes, particularly for the Yurok Tribe, that can not be resolved or mitigated. At its core, the entire problem under consideration for this proposed Action is an Environmental Justice issue. Tribes have provided an excess of historical and cultural evidence along with extensive testimony to

Comment 119 cont.

support the assertion that the only way to address and resolve these Environmental Justice issues and impacts on tribal people, communities, cultures, economies and lifeways is full dam removal and implementation of the Klamath Agreements.

54

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-1	Master Response GEN-2 Some People Approve of Dam Removal, Others Oppose Dam Removal.	No
IT_LT_1230_098-2	Master Response TTA-3 Federal Trust Responsibilities and Fisheries. Master Response TTA-4 1988 Hoopa-Yurok Settlement Act.	No
IT_LT_1230_098-3	The National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) require full disclosure of short-term and long-term adverse environmental effects; therefore the EIS/EIR discloses these effects based on the best available information and science. Mitigation measures are provided for all significant environmental effects, as required by CEQA and NEPA. The Lead Agencies have also described beneficial effects, where applicable. The Secretary will use the whole of the administrative record when making a decision, including the tradeoff's between positive and negative benefits.	No
IT_LT_1230_098-4	Under the Alternative 1 as described in the Draft EIS/EIR Section 2.4.2, PacifiCorp would need to obtain a long-term operating license from FERC to replace the existing annual license. PacifiCorp would proceed with relicensing with FERC to obtain the required long-term operating license. Until that unknown time, PacifiCorp would continue to operate under an annual license. The No Action/No Project Alternative, as described, is the most reasonable assumption of future conditions. Among the action alternatives, Alternative 4: Passage at Four Dams, as described in Final EIS 2.4.5, describes a scenario where KHSA terminates and the requirements for fish passage as set forward by the prior FERC relicensing proceedings are implemented.	No
IT_LT_1230_098-5	Master Response TTA-3 Federal Trust Responsibilities and Fisheries. Master Response TTA-4 1988 Hoopa-Yurok Settlement Act.	No
IT_LT_1230_098-6	Master Response TTA-4 1988 Hoopa-Yurok Settlement Act.	No
IT_LT_1230_098-7	The statement about the northern border of the Hoopa Valley Reservation including about a quarter mile reach of the Klamath River called Saints Rest Bar several miles upriver from Weitchpec, California is a statement of fact. The assertion that no Hoopa Valley Tribal members reside on or near the Klamath River in this portion of the Hoopa Valley Reservation, and that no fishing takes place by Hoopa Valley Tribal members at that location is an opinion that has not substantiated with evidence from the comment author.	No

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-8	The quote from Sherman does refer to the Trinity River. The quote will be removed to improve the clarity of the EIS/EIR. The effects described in 3.12-28 are related to the Proposed Action of facilities removal on the Klamath River. As the comment author points out these 'are real, and are significant' effects of the Proposed Action. Though these effects maybe indirect and outside the area targeted for restoration under the KBRA (Section 2.2.12), CFR 1508.8 requires that indirect environmental consequences of an alternative be analyzed.	Yes
IT_LT_1230_098-9	Master Response TTA-4 1988 Hoopa-Yurok Settlement Act. The comment author is correct to point out that the Resighini Rancheria was not left out of the Hoopa Yurok Settlement. The following language has been added to EIS/EIR Section 3.12.3.4 Resighini Rancheria Cultural Practices after the last sentence of the second paragraph: Under the Hoopa-Yurok Settlement Act of 1988, 25 U.S.C. §§ 1300i, et seq., (The Settlement Act) the extended strip of land along the Klamath River was cleaved from the original Hoopa Valley Reservation and designated the Yurok reservation. Section §1300i- 1(e) then vested in the Yurok Tribe the authority to govern the Yurok Reservation and to administer the unalloted trust land and assets – including the fisheries – of the Yurok Reservation. Pursuant to The Settlement Act, members of the Resighini Rancheria with Yurok heritage were given an opportunity to join the Yurok Tribe. The Settlement Act also provided qualified Indians of the original Hoopa Valley Reservation, which included allottees or their descendants, the opportunity to elect membership in the Yurok Tribe. 25 U.S.C. 1300i-5(c)(1). An Indian who chose not to affiliate with the Yurok Tribe (or the Hoopa Valley Tribe) received a lump sum payment, but lost any "interest or right whatsoever in the … resources within or appertaining to… the Yurok Reservation." 25 U.S.C. 1300i-5(d)(3). The Settlement Act also provided an opportunity for the Resighini Rancheria (along with others) to merge its lands and membership with the Yurok Reservation if a majority of the Rancheria's adult members voted in favor of such merger. 25 U.S.C. sec. 1300i-10(b). The Resighini Rancheria members did not exercise this option, the Rancheria remains a separate sovereign tribal government, and the Tribe and its lands were not extinguished through merger with the Yurok Reservation as would have occurred had its members exercised the merger option under The	Yes

Comment Code	Comment Response	Change in EIS/EIR
	Settlement Act. Fishing, water, or other rights associated with the Resighini Rancheria have not been conclusively determined. [Solicitor's Opinion M-36979 October 4, 1993]	
IT_LT_1230_098-10	Master Response TTA-4 1988 Hoopa-Yurok Settlement Act.	No
IT_LT_1230_098-11	Text no longer exists due to other comments received on the Draft EIS/EIR.	No
IT_LT_1230_098-12	Table ES-6 has been deleted due to other comments received on the Draft EIS/EIR.	No
IT_LT_1230_098-13	Text has been revised to clarify major issues. The sentence now reads, "Upper Klamath Lake has become more enriched with nutrients, leading to pH and dissolved oxygen problems that are stressful to aquatic biota and nuisance blooms of blue-green algae that produce toxins (primarily microcystin).	Yes
IT_LT_1230_098-14	Text on the designated page has been revised to Keno Reach and Keno Impoundment (including Lake Ewauna).	Yes
IT_LT_1230_098-15	Text revised for clarification. Sentence now reads, "The four dams create a "thermal lag" in both the spring and the fall. This means that the river warms more slowly in the spring and cools more slowly in the fall than it would without the dams. The result of these thermal effects is a delay in timing of runs for the migration of fall Chinook salmon."	Yes
IT_LT_1230_098-16	A footnote has been added in Section 3.2.2.4.4 to define assimilative capacity. The portion of the sentence "and water quality would also be improved by nutrient assimilation in this reach (Hamilton et al. 2011)" has been deleted.	Yes
IT_LT_1230_098-17	Change has been made.	Yes
IT_LT_1230_098-18	Change has been made.	Yes
IT_LT_1230_098-19	Change made with slight revisions: "Some cyanobacteria species produce cyanotoxins (e.g., cyclic peptide toxins such as microcystin that act on the liver, alkaloid toxins such as anatoxin-a and saxitoxin that act on the nervous system). Cyanotoxins can cause irritation, sickness, or in extreme cases, death to exposed organisms, including humans (World Health Organization [WHO] 1999). Species capable of producing microcystin include M. aeruginosa, while species in the genus Anabaena can produce anatoxin-a and saxitoxin.	Yes

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-20	Sentence edited as follows: “Additional microcystin data collection in Upper Klamath Lake is ongoing, including studies of possible effects of algal toxins on native suckers (Vanderkooi et al. 2010, see Section 3.3, Aquatic Resources for more detail).” Section 3.3 has also been edited to clarify that the cited work is preliminary or reconnaissance in nature, It was also noted in the text that the definitive laboratory studies that could verify that the indicated exposure route could result in the lesions observed have not yet been done.	Yes
IT_LT_1230_098-21	Text revised to read, " In the T1BSR, TOD2RN, and TCD2RN scenarios (but not T4BSRN), Keno Dam is replaced by the historical natural Keno Reef, such that the Keno Reach is still partially impounded even though the reef’s elevation is two feet lower than the current full pool elevation of Keno Impoundment/Lake Ewauna (Tetra Tech 2009, Kirk et al. 2010)."	Yes
IT_LT_1230_098-22	Change made with slight revisions, "Continued impoundment of water at the Four Facilities could result in long-term interception and retention of total nitrogen (TN) and total phosphorus (TP) in the Hydroelectric Reach on an annual basis but release of TP and, to a lesser degree, TN from reservoir sediments on a seasonal basis."	Yes
IT_LT_1230_098-23	The incorrect reference to seasonal release (export) of TN (as ammonium) has been removed from the italicized issue statement and the analysis text.	Yes
IT_LT_1230_098-24	The sentence has been revised to read as follows: “In the Hydroelectric Reach, the seasonal variability in dissolved oxygen concentrations in J.C. Boyle Reservoir is highly influenced by the high oxygen demand of water flowing downstream from the upstream Keno Impoundment.” Related sentences in Section 3.2.3.5 and Appendix C have also been revised, and citations from Raymond 2009 and 2010 have been added. A figure of dissolved oxygen profiles in J.C. Boyle Reservoir (from Raymond 2009) has been added to Appendix C to complement the dissolved oxygen profiles of Copco 1 and Iron Gate Reservoir already presented.	Yes
IT_LT_1230_098-25	Change has been made with minor revisions as follows: “Continued impoundment of water at the Four Facilities could result in long-term seasonal decreases in dissolved oxygen concentrations in the Klamath River downstream of Iron Gate Dam, such that levels do not meet California North Coast Basin Plan water quality objectives and adversely affect beneficial uses.	Yes

Comment Code	Comment Response	Change in EIS/EIR
	Under existing conditions, dissolved oxygen in the Klamath River exhibits seasonal low levels immediately downstream of Iron Gate Reservoir with frequent violations of the California water quality objective (expressed as percent saturation, see Table 3.2-5) during late summer/early fall (July–September) (see Section 3.2.3.5)."	
IT_LT_1230_098-26	Comment noted. While the available pH data and model results are challenging to interpret, they represent the best available information upon which to base the pH analysis. While this comment is focused on the pH analysis conducted for the No Action/No Project Alternative (p. 3.2-67), further clarifications made to the pH discussion for the Proposed Action (p. 3.2-115 to 3.2-117 in the Draft EIS/EIR) are relevant to this comment. The referenced text has been revised.	Yes
IT_LT_1230_098-27	Change has been made with minor revisions: "This would require decades to achieve and it is highly dependent on nutrient improvements in Upper Klamath Lake, Link River, and the Keno Impoundment (including Lake Ewauna)."	Yes
IT_LT_1230_098-28	Accepted with minor revisions: "Under existing conditions, chlorophyll-a concentrations during summer through fall in the Klamath River downstream of Iron Gate Dam can be greater than those in the river directly upstream of Copco 1 Reservoir due to in reservoir algal blooms that are transported into the lower river (see Appendix C, Section C.4.1.4 and Figure C-28)."	Yes
IT_LT_1230_098-29	Change has been made.	Yes
IT_LT_1230_098-30	1) The page referenced in the comment includes three citations of Asarian and Kann (2006a). As suggested in the comment, these citations have been changed to "data from electronic appendices of Asarian and Kann 2006a". The references are not deleted entirely because the data are available in more than one source. 2) and 3) The paragraph has been deleted. Figure 3.2-2 has been moved forward in the text to align with the issue statement regarding the J.C. Boyle bypass and peaking reaches.	Yes
IT_LT_1230_098-31	The following sentence has been added: "Further, the Total Maximum Daily Load (TMDL) model predictions generally agree with empirical data regarding J.C. Boyle Reservoir; with its shallow depth and short residence time, this reservoir does not retain high amounts of nutrients (PacifiCorp 2006) (see Appendix C for more detail) and its removal would not be expected to increase nutrient transport further downstream in the Hydroelectric Reach."	Yes

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-32	Change has been made. Additionally, the following sentence has been added: “The magnitude of this potential over-prediction would be expected to increase with distance downstream (i.e., relatively lower over-prediction at Iron Gate Dam and the Upper Klamath Basin, but relatively higher over-prediction at sites in the lowest portion of the river such as Orleans), due to a longer distance of river within which denitrification and other nitrogen removal processes would operate.”	Yes
IT_LT_1230_098-33	Change has been made with slight revisions: TMDL model results indicate that while resulting TP levels would meet the existing Hoopa Valley Tribe numeric water quality objective (0.035 mg/L TP) at the Hoopa reach (approximately RM 45 to 46) of the Klamath River, TN levels would continue to be in excess of the existing objective (0.2 mg/L TN) in some months (North Coast Regional Water Quality Control Board [NCRWQCB] 2010a). However, as noted previously, TN concentrations in the model may be over-predicted and therefore the Hoopa Valley Tribe objective may in fact be met.	Yes
IT_LT_1230_098-34	The premise of the comment seems generally fine, but the explanation is hard to understand. Further the suggested use of “due to the removal of the reservoir” is vague and not tied to anything else in the analysis discussion. Since there was already a paragraph later in the section discussing uncertainty in the TMDL predictions with respect to periphyton growth, this text has been moved forward and the paragraph in questions has been revised.	Yes
IT_LT_1230_098-35	The referenced paragraph has been clarified.	Yes
IT_LT_1230_098-36	Change has been made with minor revisions.	Yes
IT_LT_1230_098-37	The pH analysis for the Upper Klamath Basin has been revised to include additional detail regarding pH in the free-flowing reaches of the river that replace the reservoirs.	Yes
IT_LT_1230_098-38	The pH analysis for the Upper Klamath Basin has been revised to include additional detail regarding pH in the free-flowing reaches of the river that replace the reservoirs.	Yes
IT_LT_1230_098-39	This sentence has been deleted because it is not consistent with clarifications made to Draft EIS/EIR Section 3.4.4.3 regarding the lack of transport of large noxious algal blooms and high concentrations of microcystin from Upper Klamath Lake into the Hydroelectric Reach.	Yes
IT_LT_1230_098-40	We have reviewed Deas (2008) for discussion of nitrification potential in the river reach between Keno Dam and J.C. Boyle Reservoir and revised the Draft EIS/EIR for the Proposed Action	Yes

Comment Code	Comment Response	Change in EIS/EIR
	and Alternative 3 to discuss the idea that decommissioning the East and West Side Facilities could result in slight decreases in ammonia levels in the Keno Impoundment/Lake Ewauna. With respect to dissolved oxygen, while concentrations could occur in the Link River due to the decommissioning, it may not translate into increased dissolved oxygen concentrations in the Keno Impoundment/Lake Ewauna itself since river turbulence would also break up algal cells and cause increased biological oxygen demand in the slow moving waters of the impoundment. This discussion has also been added to the Final EIS/EIR.	
IT_LT_1230_098-41	The statement has been corrected to reflect the analysis for the Proposed Action, as follows: slight summertime increases in pH and daily pH fluctuations would occur at the Oregon-California State line and upstream and downstream reaches that are currently riverine, and these increases would be less than significant. In the free-flowing reaches of the Hydroelectric Reach that replace Copco 1 and Iron Gate Reservoirs the decrease in high summertime daily pH fluctuations would be beneficial. The summertime increases in pH in Lower Klamath River from Iron Gate Dam to the confluence with the Scott River would be less than significant.	Yes
IT_LT_1230_098-42	We have reviewed Deas (2008) for discussion of nitrification potential in the river reach between Keno Dam and J.C. Boyle Reservoir and revised the Draft EIS/EIR for the Proposed Action and Alternative 3 to discuss the idea that decommissioning the East and West Side Facilities could result in slight decreases in ammonia levels in the Keno Impoundment/Lake Ewauna. With respect to dissolved oxygen, while concentrations could occur in the Link River due to the decommissioning, it may not translate into increased dissolved oxygen concentrations in the Keno Impoundment/Lake Ewauna itself since river turbulence would also break up algal cells and cause increased biological oxygen demand in the slow moving waters of the impoundment. This discussion has also been added to the Final EIS/EIR.	Yes
IT_LT_1230_098-43	To provide additional clarity, the text in this section has been revised as follows. “Under the Fish Passage at Four Dams Alternative, the overall higher flow releases would result in more reservoir water entering the Bypass Reach and correspondingly warmer water temperatures during summer and early fall, and cooler temperatures in late fall and winter. These effects would be similar to those under the Proposed Action and would move this short reach away from support of core coldwater habitat during summer and early fall months; however, as with the Proposed Action, areas adjacent to the coldwater springs in the Bypass Reach would continue to serve as thermal refugia for aquatic species because the springs themselves would not be affected by	Yes

Comment Code	Comment Response	Change in EIS/EIR
	the Fish Passage at Four Dam Alternative. Since J.C. Boyle Reservoir, with its large thermal mass, would remain in place, effects on diel temperature variation in the Bypass Reach under the Fish Passage at Four Dams Alternative would be similar to those described for the No Action/No Project Alternative (i.e., reduced diel temperature variation)."	
IT_LT_1230_098-44	The sentence has been revised to be more consistent with the analysis presented in the Proposed Action: "Similar to the Proposed Action, maximum water temperatures in the Peaking Reach would be slightly cooler and temperatures would be less artificially variable, also due to higher overall flows and the lower frequency of peaking operations at the J.C. Boyle Powerhouse." The following sentence has been deleted because it is not supported by the analyses presented under the No Action/No Project Alternative or the Proposed Action: "Further downstream, at the Oregon-California State line, water temperatures would likely be similar to those under the No Action/No Project Alternative since large temperature effects of the peaking operations do not extend this far downstream."	Yes
IT_LT_1230_098-45	The sentence has been removed.	Yes
IT_LT_1230_098-46	Change made with minor revisions.	Yes
IT_LT_1230_098-47	The section has been revised to more accurately reflect projected water temperature alterations downstream of J.C. Boyle in the bypass and peaking reaches under the alternatives, based on this and other comments on the Draft EIS/EIR.	Yes
IT_LT_1230_098-48	Revised statement to be consistent with analysis for the Proposed Action, as follows: "Slight decreases in long-term maximum summer/fall water temperatures and less daily fluctuation in the J.C. Boyle peaking reach would be beneficial."	Yes
IT_LT_1230_098-49	Sentence has been deleted.	Yes
IT_LT_1230_098-50	Comment noted. The effects are analyzed separately since both processes occur in relation to the reservoirs and appropriate (but different) significance calls are presented for each effect. No change to text is needed.	No
IT_LT_1230_098-51	The incorrect reference to seasonal release (export) of TN has been removed from the italicized issue statement and the analysis text.	Yes

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-52	The summary statement has been revised to include potential effects on DO at specific locations.	Yes
IT_LT_1230_098-53	The Draft EIS/EIR is structured such that each analysis section begins with an italicized issue statement. The sentences in question have been revised as follows: "Continued impoundment of water at the Four Facilities could result in the continued release of seasonally low dissolved oxygen concentrations from Iron Gate Reservoir into the Klamath River, such that levels immediately downstream of the dam do not meet California North Coast Basin Plan water quality objectives and adversely affect beneficial uses. Under existing conditions, dissolved oxygen in the Klamath River exhibits seasonal low levels immediately downstream of Iron Gate Reservoir with frequent violations of the California water quality objective (expressed as percent saturation, see Table 3.2-5) during late summer/early fall (July–September) (see Section 3.2.3.5)."	Yes
IT_LT_1230_098-54	Row has been deleted from table.	Yes
IT_LT_1230_098-55	Change has been made in Table 3.2-14 and in Sections 3.2.4.3.2.6, 3.2.4.3.3, and 3.2.4.3.5.6. for consistency.	Yes
IT_LT_1230_098-56	Change has been made in Table 3.2-14 and in Sections 3.2.4.3.2.6, 3.2.4.3.3, and 3.2.4.3.5.6. for consistency.	Yes
IT_LT_1230_098-57	The analysis of decommissioning of the East and West Side Facilities has been revised based on available information.	Yes
IT_LT_1230_098-58	Change has been made.	Yes
IT_LT_1230_098-59	The Vanderkooi et al. (2010) fact sheet has been reviewed and is a citable reference under U.S. Geological Survey guidelines. However, we agree that the findings are not conclusive at this point in time. Based on the results of this study, additional research has begun to confirm the relationship between the algal toxin and the lesions that have been observed. Therefore, we have changed the text in Section 3.3.3 of the EIS to read as follows: **"**In Upper Klamath Lake, a reconnaissance study was conducted to evaluate the presence, concentration, and dynamics of microcystin exposure by Lost River sucker (*Deltistes luxatus*) and shortnose sucker (*Chasmistes brevirostris*). The U.S. Geological Survey (USGS) collected water samples at multiple lake sites from July to October 2007 and June through September 2008 and found evidence of gastro-intestinal lesions in juvenile suckers sampled from around the lake, although organ damage also was absent from many fish, and most of the affected fish were	Yes

Comment Code	Comment Response	Change in EIS/EIR
	collected in the northern portion of the lake. The pathology of the lesions was consistent with exposure to microcystin, and evidence of a route of exposure was suggested by gut analysis showing that juvenile suckers had ingested chironomid larvae, which had in turn ingested *A. flos-aquae* and colonies of *M. aeruginosa*. The lesions were observed when liver necrosis was either present or absent suggesting that the gastro-intestinal tract was the first point of toxin contact. The authors hypothesized that the lesions were caused by algal toxins, and that the route of exposure to toxins was an oral route through the food chain, rather than exposure to dissolved toxins at the gills (VanderKooi et al. 2010). However, there were other possible explanations for the lesions, including the potential for an undetected viral infection. Conclusive pathology experiments demonstrating that exposure of juvenile suckers to algal toxins via the described oral routes can cause the types of lesions observed have not yet been done. The pathologies and evidence therefore are consistent with the hypothesis of exposure to algal toxins but do not constitute proof of a causal mechanism. Additional work to describe the observed pathologies is ongoing.”	
IT_LT_1230_098-60	The October 2010 data reported in Kann et al. (2011) has been included as part of expanded text in Final EIS/EIR Section 3.3.3.3 to further describe existing conditions regarding bioaccumulation of microcystin in fish and mussel tissue in the Klamath Basin.	Yes
IT_LT_1230_098-61	Change has been made.	Yes
IT_LT_1230_098-62	Added reference on p.3.4-6, in the Upper Klamath Basin Phytoplankton section.	Yes
IT_LT_1230_098-63	The comment reference is VanderKooi et al. 2010; and it was added to references list.	Yes
IT_LT_1230_098-64	Sentence changed to: The WHO guidelines for exposure to microcystin were exceeded in 2007–2008 in Upper Klamath Lake (VanderKooi et al. 2010). More frequent exceedance of algal toxin guidelines have occurred since 2007 in the middle and lower Klamath River (Chorus and Bartram 1999; Fetcho 2006, 2007, 2008; Kann 2008; Kann and Corum 2009), resulting in the Klamath River from Copco 1 Reservoir (RM 203.1) to Iron Gate Dam (RM 190.1) being listed as impaired for toxicity due to the presence of microcystin in the reservoirs (Section 3.2.2.3).	Yes
IT_LT_1230_098-65	The Raymond (2009) document cited in the Draft EIS/EIR entitled “Results of Cyanobacteria and Microcystin Monitoring in the Vicinity of the Klamath Hydroelectric Project: June 8, 2009” states	Yes

Comment Code	Comment Response	Change in EIS/EIR
	the following (see p. 2 and 3): "*Anabaena flos-aquae* was present at all sites sampled. At the concentrations present, *Anabaena spp.* could present a low to moderate risk of adverse health effects to individuals engaging in water contact recreation. The abundance of *Anabaena flos-aquae* at Mallard Cove in Copco reservoir and at the Jay Williams campground in Iron Gate reservoir exceeds the California health advisory guidelines." However, the quotes referenced in the comment appear in Raymond (2009) "Phytoplankton Species and Abundance Observed During 2008 in the Vicinity of the Klamath Hydroelectric Project.", which was not referenced in the Draft EIS/EIR. Since the latter Raymond (2009) is a synthesis of all 2008 results, it serves as a better overall source of information on *Anabaena spp.* occurrence in the Project reservoirs during 2008. That said, the sentence referred to in the comment has been deleted because it was out of place in this section – the detailed discussion of algal blooms in the Project reservoirs is presented in Draft EIS/EIR Section 3.4.3.1. Reference to the broader 2008 synthesis by Raymond (2009) has been added to Final EIS/EIR Section 3.4.3.4.1. In addition, a citation for Asarian and Kann (2011) has been added to the Final EIS/EIR. The reference to Mackie (2005) has been added to Final EIS/EIR Section 3.4.3.1.	
IT_LT_1230_098-66	Change made. Sentence now reads: The factors influencing periphyton abundance and community composition are complex and include a biotic factors such as nutrients, substrate, flow velocity, shading, light availability, and water temperature (Biggs 2000), as well as ecological factors such as macro invertebrate grazing that interact with a biotic factors (Power et al. 2008).	Yes
IT_LT_1230_098-67	A citation for Asarian and Kann (2011) has been added to the Final EIS/EIR.	Yes
IT_LT_1230_098-68	This paragraph has been revised to indicate that *Aphanizomenon flos-aquae* and *Microcystis aeruginosa* are the dominant blue-green algal species found in the reservoirs. A citation for Asarian and Kann (2011) has been added to the Final EIS/EIR. Sentence now reads: Large algae blooms occur again in the reservoirs in mid-summer to fall months, dominated by *Aphanizomenon flos-aquae* and *Microcystis aeruginosa* (Asarian and Kann 2011; Kann 2006; FERC 2007; Raymond 2008, 2009, 2010).	Yes
IT_LT_1230_098-69	Change has been made.	Yes

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-70	The following sentences have been deleted from Draft EIS/EIR, p.3.4-12: “Increases in nutrient availability under climate change may also cause a shift in periphyton community composition from that dominated by nitrogen-fixing periphyton species to that dominated by non-nitrogen fixers. It remains uncertain whether this change in community composition would result in a change in periphyton biomass.”	Yes
IT_LT_1230_098-71	The two sentences have been deleted.	Yes
IT_LT_1230_098-72	Change has been made.	Yes
IT_LT_1230_098-73	Suggested changes accepted with minor edits. Sentence now reads: In addition, N-fixing species currently dominate the periphyton communities in the lower reaches of the Klamath River where inorganic nitrogen concentrations are low (Asarian et al. 2010). Since these species can fix their own nitrogen from the atmosphere, increases in TN due to dam removal may alter the composition of the periphyton community but it may not significantly increase algal biomass in these reaches because it will be accompanied by only relatively minor increases in TP. In addition, overall TN and TP increases could be less than those predicted by existing models due to implementation of TMDL and general nutrient reductions in the Klamath Basin.	Yes
IT_LT_1230_098-74	The statement “However, since the long-term increase in nutrients in the Klamath Estuary would be a less-than-significant impact due to the implementation of TMDL and KBRA (see Section 3.2.4.3.2.3 Nutrients – Lower Klamath Basin), it is likely that increases in periphyton growth would also be less than significant” is not consistent with the analysis conducted in Section 3.2.4.3.2.3. This sentence has been revised to be consistent with the water quality analysis, as follows: “However, the long-term increase in nutrients in the Klamath Estuary would be relatively small due to the effects of tributary dilution and nutrient retention in the 190 miles between Iron Gate Dam and the Estuary (Asarian et al. 2010). In addition, N-fixing species dominate the periphyton communities in the lower reaches of the Klamath River where inorganic nitrogen concentrations are low and these species can fix their own nitrogen from the atmosphere (Asarian et al. 2010). Thus, increases in TN due to dam removal are not likely to significantly increase periphyton growth in the Klamath Estuary (see also Section 3.2.4.3.2.3 Nutrients – Lower Klamath Basin).”	Yes
IT_LT_1230_098-75	Change has been made.	Yes

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-76	Change has been made.	Yes
IT_LT_1230_098-77	The referenced sentence has been deleted because it focuses on concentrations downstream of the Hydroelectric Reach, which is covered in Appendix C, Section C.6.2. The text has been revised as follows: "Microcystin measured during May–December 2009 exhibited extremely high concentrations (1,000–73,000 micrograms per liter (µg/L)) during algal blooms occurring in July, August, and September in Copco 1 Reservoir in Mallard Cove and Copco Cove, and in Iron Gate Reservoir at Jay Williams (Watercourse Engineering 2011)."	Yes
IT_LT_1230_098-78	The text on p. C-58 is not intended to minimize the downstream river exceedances of guidelines for M. aeruginosa and microcystin toxin, but it is important to note, especially in the context that the river is seeded by large blooms from the reservoirs. Text in Appendix C, Section C.6.2 and Section 3.4.3.5.1 discuss the importance of the river exceedances. The following additional text has been added to p. C-58: "Results from 2010 agree with the 2005–2008 data (Kann and Bowater 2012). Concentrations of microcystin toxin in Iron Gate and Copco 1 Reservoirs are typically 1 to 3 orders of magnitude greater relative to the lower Klamath River (Raymond 2008, Kann et al. 2010, Kann and Bowman 2012). Overall, the available data indicate that while river exceedances do occur, they are far less in number than exceedances in Copco 1 and Iron Gate Reservoirs (Figure C-32; see also Raymond 2008, Kann et al. 2010, Kann and Bowman 2012)."	Yes
IT_LT_1230_098-79	The referenced text in Appendix C, Section C.6.2.2.indicates the correct information from Watercourse Engineering Inc. (2011): "During 2009, mean microcystin concentrations from Orleans (RM 57) to Klamath River at Klamath (RM 6.0) were less than 1 µg/L, or well below the California State Water Resources Control Board (SWRCB)/Office of Environmental Health and Hazard Assessment (OEHHA) public health threshold of 8 µg/L (Watercourse Engineering, Inc. 2011). Individual microcystin measurements generally remained less than 1 µg/L as well, with the exception of a sample collected in late-September at Orleans (RM 59.1) for which the concentration was just over 6 µg/L (Watercourse Engineering, Inc. 2011)." No change to this text is needed. However, to clarify that there have been individual exceedances following text has been added to Appendix C, Section C.6.2.1 "During 2009, mean microcystin concentrations immediately downstream of Iron Gate Dam (RM 189.7) were 2 ug/L, with mean values decreasing to less than 1 ug/L at sites further downstream to approximately Orleans (RM 57) (Watercourse Engineering, Inc.	Yes

Comment Code	Comment Response	Change in EIS/EIR
	2011). However, two measurements exceeded 8 ug/L at stations located at RM 156 and 128.5 (Watercourse Engineering, Inc. 2011)."	
IT_LT_1230_098-80	Change has been made.	Yes
IT_LT_1230_098-81	To reduce confusion, the legends and captions of these figures have been changed to indicate that they are representing dry, average, and wet conditions rather than dry, average, and wet years.	Yes
IT_LT_1230_098-82	As discussed in the referenced Hydrology Report (Reclamation 2012d), the Proposed Action flows are based on the KBRA and include Appendix E-5 stipulations. While the Hydrology Report does not contain all data, it contains multiple summaries of the data in different formats in the document's appendices. Appendix F includes exceedence flows that can be compared to other conditions. Daily flow results at each modeled node are extremely lengthy to include in the document, but are available on request.	No
IT_LT_1230_098-83	The Lead Agencies are uncertain of how a change in management regime could affect future minimum flows; therefore, this change was not made in the document.	No
IT_LT_1230_098-84	The EIR has been revised to include a more detailed discussion of eulachon, and includes citations of both references.	Yes
IT_LT_1230_098-85	The EIS/EIR has been revised to reflect information as follows: "The Southern Green Sturgeon DPS is listed as threatened under the Federal Endangered Species Act (ESA) (National Oceanic and Atmospheric Association [NOAA Fisheries Service] 2006). Juvenile and adult Southern Green Sturgeon enter many estuaries along the West Coast during the summer months to forage, but their use of the Klamath River estuary has not been documented. No sturgeon tagged by the Yurok Tribe within the Klamath River have ever been detected in the range of Southern Green Sturgeon Distinct Population Segment (DPS) (primarily San Francisco Bay) despite the presence of numerous receivers that would have detected Klamath River tagged fish if they had ventured there. No Southern Green Sturgeon tagged in the Sacramento/San Joaquin and/or San Francisco Bay region have ever been detected in the Klamath River. Southern Green Sturgeon have been detected immediately offshore of the Klamath River, but have not been detected in the Klamath River estuary or mainstem despite the presence of functioning acoustic receivers in the Klamath River estuary. Overall, it appears unlikely that sturgeon from the Southern Green Sturgeon DPS currently occur within the Klamath River."	Yes

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-86	As described in the Draft EIS/EIR Section 3.3.4.1 (P. 3.3-47 and 3.3-48), the effects to aquatic organisms due to the increase in suspended sediment concentrations were computed as suggested by the comment author: For each simulation year in the period of record, the duration of suspended sediment concentrations over a given threshold was calculated. From those durations, we then calculated a 50% and 10% exceedance for the time spent over that threshold. Although the EIR/EIR is clear on this point, additional explanation has been added. We did not compute the exceedances by using the concentrations for a particular day from all the simulations. We agree that this would have been an improper application of exceedance percentages. We did not analyze a best case scenario because it did not seem to be relevant to the analysis of potential impacts to sensitive species.	No
IT_LT_1230_098-87	Master Response GEN-1 Comment Included as Part of the Record. Additional text has been added to Section 3.3, Aquatics Resources, describing the phase shift and its anticipated affect on salmon development.	Yes
IT_LT_1230_098-88	Alternative 1, Key Ecological Attributes, Fish Disease and Parasites Section (Section 3.3.4.3.1.1.5 of the Final EIS/EIR) has been revised as follows: Salmon would continue to concentrate downstream of Iron Gate Dam, where the polychaete hosts are abundant, facilitating the cross infection between the fish and the polychaetes. Based on this scenario, mortality associated with C. shasta and P. minibicornis would be expected to worsen or remain similar to existing conditions.	Yes
IT_LT_1230_098-89	The EIS/EIR acknowledges that Chinook salmon populations have experienced severe declines from historic levels. Anadromous fish in the Klamath Basin are nearly all in decline (Draft EIS/EIR Section 3.3.3.1, Table 3.3-1, p. 3.3-4). No change from existing conditions means that a fish population would likely continue to decline if its current condition is one of decline. Under the No Action/No Project Alternative, Essential Fish Habitat (EFH) for Chinook and coho salmon would be expected to remain similar to its current condition. Access to habitat would be limited to current levels; water quality would improve through TMDL implementation, but would be offset by warming expected as a result of climate change. The amount of suitable habitat in currently accessible tributaries would likely be reduced by climate change.	No

Comment Code	Comment Response	Change in EIS/EIR
	Conditions under the No Action/No Project Alternative would continue to contribute to elevated concentrations of disease parasites and would provide the conditions required for the cross infection of fish and polychaetes. These interacting factors could decrease the viability of Chinook and coho salmon populations in the future. The effects of the No Action alternative on Spring and Fall Chinook Salmon were described in detail in EIS/EIR Section 3.3.4.3, p. 3.3-61 to 3.3-64. Master Response AQU-6B Expert Panel Coho, Steelhead and Chinook. Master Response AQU-7 Expert Panel Uncertainty and Likelihood of Success. Master Response AQU-30 BRT Current Status of Chinook Fisheries. Additional text has been added to Section 3.3.3 of the EIS/EIR summarizing the findings of Williams et al. 2011.	
IT_LT_1230_098-90	Section 3.3 Aquatic Resources has been revised consistent with the request by the comment author.	Yes
IT_LT_1230_098-91	As described in the Draft EIS/EIR Section 3.3.4.1 (p. 3.3-47 and 3.3-48), the EIS/EIR does not analyze a best case scenario because it did not seem to be relevant to the analysis of potential impacts to sensitive species. Methods for the analysis are summarized in the Draft EIS/EIR Section 3.3.4.1 (p. 3.3-47 and 3.3-48), and in full detail in the attached technical Appendix E. As described in the Draft EIS/EIR Section 3.3.4.1 (p. 3.3-47 and 3.3-48), the effects to aquatic organisms due to the increase in suspended sediment concentrations were computed as suggested by the comment author : For each simulation year in the period of record, the duration of suspended sediment concentrations over a given threshold was calculated. From those durations, we then calculated a 50% and 10% exceedance for the time spent over that threshold. Although the EIR/EIR is clear on this point, additional explanation has been added. We did not compute the exceedances by using the concentrations for a particular day from all the simulations. We agree that this would have been an improper application of exceedance percentages.	No
IT_LT_1230_098-92	Methods for the analysis are summarized in the Draft EIS/EIR Section 3.3.4.1 (p. 3.3-47 and 3.3-48), and in full detail in the attached technical Appendix E. As described in the Draft EIS/EIR Section 3.3.4.1 (p. 3.3-47 and	No

Comment Code	Comment Response	Change in EIS/EIR
	3.3-48), the effects to aquatic organisms due to the increase in suspended sediment concentrations were computed as suggested by the comment author: For each simulation year in the period of record, the duration of suspended sediment concentrations over a given threshold was calculated. From those durations, we then calculated a 50% and 10% exceedance for the time spent over that threshold. Although the EIR/EIR is clear on this point, additional explanation has been added. We did not compute the exceedances by using the concentrations for a particular day from all the simulations. We agree that this would have been an improper application of exceedance percentages.	
IT_LT_1230_098-93	An impact statement has been added under the No Action/No Project Alternative to analyze flood risk associated with dam failure. The analysis finds that the risk may or may not increase as the facilities age (maintenance may improve facilities), but PacifiCorp's inspection procedures (described on p. 3.6-19) would reduce the likelihood of dam failure. These impacts would be less than significant. P. 3.6-32 discusses the Proposed Action's reduced flood risk associated with dam failure.	Yes
IT_LT_1230_098-94	Within the Klamath River system, steelhead trout are resistant to C. Shasta, a disease causing pathogen that adversely affects juvenile Chinook salmon (Administrative Law Judge, Finding of Fact 2B-18, p 22 of 87).	No
IT_LT_1230_098-95	Suggested edit was incorporated into EIS/EIR with the alteration of…"2002 fish kill of juvenile and adult'' to '…2002 fish kill of primarily adult.'' text was checked for other uses- but none were found.	Yes
IT_LT_1230_098-96	The EIS/EIS has been revised to address the comment.	Yes
IT_LT_1230_098-97	Suggested edits have been added to the Section 3.3.	Yes
IT_LT_1230_098-98	The Final EIS/EIR was revised to read "Based on this scenario, mortality associated with C. shasta and P. minibicornis would be expected to worsen or remain similar to existing conditions."	Yes
IT_LT_1230_098-99	The proposed edit has been made in the EIS/EIR	Yes
IT_LT_1230_098-100	EIS/EIS has been revised to consider continued disease mortality of juvenile spring Chinook salmon under No Action/No Project Alternative.	Yes

Comment Code	Comment Response	Change in EIS/EIR
IT_LT_1230_098-101	Agree with comment, and EIS/EIR has been revised to reflect the additional factor of, “increased planktonic food sources from project reservoirs.” The sentence now reads, “The main factors contributing to parasitic fish disease in the Klamath River include habitat (pools, eddies, and sediment); microhabitat characteristics (stable flows and low velocities); host proximity to spawning areas; increased planktonic food sources from Project reservoirs; and water temperatures greater than 15°C (Bartholomew and Foott 2010).” The following was also added, “The removal of the Four Facilities would be likely to reduce habitat quality for the polychaete host by reducing reservoir habitat, reducing planktonic food sources, and restoring seasonal flow patterns and sediment dynamics that reduce the stability of the host’s favored habitats.” Master Response WQ 6 Periphyton Growth and Fish Disease.	Yes
IT_LT_1230_098-102	The cost estimates for dam removal reflect reasonable assumptions for contingencies and for escalation rates based on similar projects for which Reclamation has experience, and on economic conditions, but include allowances for uncertainties associated with these estimates. A Monte Carlo analysis has been performed and the sensitivities of all assumptions have been identified. The allowance for mitigation measures is based on preliminary estimates prepared for the individual mitigation measures identified in the Draft EIS/EIR. A range of total construction costs based on the Monte Carlo analysis has been prepared to help portray these uncertainties.	No
IT_LT_1230_098-103	The Lead Agencies considered these comments as they relate to the Detailed Plan.	No
IT_LT_1230_098-104	The Draft EIS/EIR includes analysis of the No Action/No Project Alternative in great detail. This information is contained in the “Effects Determinations” sections of each resource area. A summary related to the issues raised in the comment includes: • Water quality impacts are analyzed on p. 3.2-47 through 3.2-76. The No Action/No Project Alternative would not have the adverse impacts described in the comment because other actions would continue to move forward. The TMDLs would continue, resulting in water quality improvements. The No Action/No Project Alternative would result in impacts that would be generally less than significant or beneficial compared to existing conditions. • Aquatic resource impacts are analyzed on p. 3.3-53 through 3.3-75. Generally, implementation of the TMDLs would improve temperatures and other restoration	No

Comment Code	Comment Response	Change in EIS/EIR
	activities would improve conditions for some fish in the basin. Other fish would experience no change. • Climate change impacts to hydrology were inconclusive (see "Reclamation (2012d). "Hydrology, Hydraulics and Sediment Transport Studies for the Secretary's Determination on Klamath River Dam Removal and Basin Restoration," Technical Report No. SRH-2011-02. Prepared for Mid-Pacific Region, Bureau of Reclamation, Technical Service Center, Denver, CO. Available on www.klamathrestoration.gov.) • For cultural resources, traditional use areas, and Traditional Cultural Properties (TCPs), the adverse impacts have already occurred. These impacts would continue, but they would result in no change from existing conditions (see p. 3.13-28). • Similarly, impacts to Tribal Trust Resources and tribal members have already occurred. These impacts would continue under the No Action/No Project alternative but they would not change from existing conditions (see p. 3.12-25). • Continued adverse economic conditions from the Yurok Tribe's fishery are described on p. 3.15-47. These conditions are already adverse and the No Action/No Project would represent no change from existing conditions. • Environmental Justice effects are described on p. 3.16-24 to 3.16-25. The tribes remain disproportionately affected.	
IT_LT_1230_098-105	Master Response N/CP-5 Use of "Would" and "Could."	No
IT_LT_1230_098-106	The No Action/No Project Alternative includes the following multiple reasonably foreseeable actions associated with water quality during the period of analysis (Public Draft EIS/EIR Section 3.2.4.1 (p. 3.2-35): • Ongoing restoration activities in the Klamath Basin (see Section 2.4.2). • Implementation of TMDLs for Oregon and California (see Section 3.2.2.4) • NOAA Fisheries Service 2010 Biological Opinion mandatory flows (see Section 2.3.1). • CDFG Code Section 5937 instream flow mandate for tributaries to the mainstem Klamath River • Climate change (see Section 3.10.3.1). Therefore, under the No Action/No Project Alternative, elements of ongoing restoration projects, TMDLs, and programs mandating stream flows that would affect future water quality are identified for	No

Comment Code	Comment Response	Change in EIS/EIR
	a specific reach and/or water quality parameter and included as part of the analysis narrative in a qualitative or, if possible, a quantitative manner." Further TMDL implementation is discussed throughout the No Action/No Project Alternative analysis.	
IT_LT_1230_098-107	Master Response WQ-4 C, D Hydroelectric Project Impacts to Water Quality & Anticipated KHSA/KBRA Improvements. The impact of the dams and other past actions over time is generally captured in the description of the baseline condition (Draft EIS/EIR p. ES-41) and the descriptions of the No Action / No Project Alternative that appear throughout the document. The purpose of the NEPA and CEQA environmental review process is to disclose to decision makers and the public the significant environmental effects of a Proposed Action or project (40 CFR Section 1502.1). While NEPA requires a discussion of the potential impacts of the Proposed Action to the subject species, neither NEPA nor CEQA require an analysis of the point at which specific species or genetic populations become extinct or eligible for listing as T & E species under the No Action Alternative. Therefore, it is beyond the scope of this EIS/EIR to complete the analysis requested. Master Response AQU-33 ESA Compliance. Master Response AQU-30 BRT Current Status of Chinook fisheries.	No
IT_LT_1230_098-108	P. 3.10-18 and 3.10-19 of the Draft EIS/EIR discuss the effects of climate change on the No Action/No Project Alternative. As discussed in this section, "[t]he baseline temperatures on the mainstem of the Klamath River are stressful for fish, and fish rely on small areas of refugia (typically near tributary inflow. Therefore climate change is likely to reduce or possibly eliminate these refugia, making the temperature in the mainstem of the river unsuitable for fish rearing and movement during critical times of the year." The section continues to state that "free-flowing rivers, in general, respond better to changes in climate conditions due to the ability to adjust to and absorb disturbances through flow adjustments that buffer against impacts." Section 3.10.3 of the Draft EIS/EIR provides a summary of projected changes in climate change in the Pacific Northwest and the Klamath Basin, including increased temperature, increased number of extreme heat days, annual precipitation, changes to seasonal precipitation, increase in heavy precipitation, reduced snowpack, groundwater hydrology, vegetation changes, and annual stream flow effects. While this discussion is related to	No

Comment Code	Comment Response	Change in EIS/EIR
	existing conditions, it is expected that these types of changes could continue in the future under the No Action/No Project Alternative.	
IT_LT_1230_098-109	Although a standalone Vulnerability Assessment was not conducted to assess climate change-related impacts, the Draft EIS/EIR includes an analysis of the effects of climate change on each of the alternatives (see p. 3.10-18, 3.10-21, 3.10-33, 3.10-36, and 3.10-40). These sections present summaries of larger reports and studies, they disclose the expected effects that could occur from climate change, as well as the way in which each alternative would affect climate change. The importance of a free-flowing river that contains refugia throughout the basin is discussed.	No
IT_LT_1230_098-110	Master Response TTA-2 Clarification of the Tribal Trust No Action.	Yes
IT_LT_1230_098-111	Master Response TTA-2 Clarification of the Tribal Trust No Action.	Yes
IT_LT_1230_098-112	Master Response TTA-5 Presentation of Effects.	No
IT_LT_1230_098-113	Consultations were initiated on October 19, 2010, with the Yurok Tribe and are continuing throughout the National Environmental Policy Act (NEPA) process. Information provided by the Yurok THPO was incorporated into Section 3.13, Cultural and Historic Resources, of the EIS/EIR. Concurrence with consulting parties is not required when an agency elects to use the NEPA process and documentation to meet its compliance with Section 106 of the NHPA. See 36 C.F.R. § 800.8(c)(2). The U.S. Department of Interior (DOI) is utilizing the integration process permitted under 36 C.F.R. § 800.8(c), and has meet the criteria required by the regulations.	Yes
IT_LT_1230_098-114	The Lead Agencies acknowledge that Yurok TCPs may be adversely affected under the No Action Alternative. However under this alternative, compliance with Section 106 of NHPA would apply to Federal actions not related to removal of the dams or the proposed affirmative alternatives.	Yes
T_LT_1230_098-115	The Lead Agencies acknowledge these techniques should be explored and considered in the NHPA process, should there be an Affirmative Determination. Capping was added to Section 3.13, Cultural and Historic Resources, as a protective measure. Mitigation Measures in Section 3.13 identify additional NHPA consultations and cultural resources management plans for the affirmative alternatives.	Yes
IT_LT_1230_098-116	In Section 3.13, Cultural and Historic Resources, of the Draft EIS/EIR, Cultural Landscapes and Traditional Cultural Properties are specifically defined and the “riverscape” is discussed.	Yes

Comment Code	Comment Response	Change in EIS/EIR
	Information obtained from the Yurok Tribal Historical Preservation Officers (THPO) regarding important cultural resources was added to Section 3.13. Mitigation measures address different cultural resources types, including Mitigation Measure CHR-2 for cultural resources, Mitigation Measure CHR-3 for TCPs and cultural landscapes, and Mitigation Measure CHR-4 for human remains. DOI consulted with Yurok's THPO under NHPA Section 106 to identify sites of religious and cultural significance to the Yurok Tribe and to identify concerns regarding effects and potential resolutions to any adverse effects to those sites.	
IT_LT_1230_098-117	Section 3.15.4.2 of the Draft EIS/EIR indicates that fishery conditions faced by Indian Tribes in the Klamath Basin would remain at current levels under the No-Action/No Project Alternative. Abundance levels of some Klamath Basin Chinook populations are low, particularly relative to historical levels, but have shown little change in recent decades and are currently not at major risk of extinction. Master Response AQU-30 BRT Current Status of Chinook Fisheries.	No
IT_LT_1230_098-118	The tribal effects described in Section 3.15 (Socioeconomics) are narrowly focused on fishing and related practices. Sections 3.12 (Tribal Trust) and 3.13 (Cultural and Historic Resources) provide more comprehensive consideration of tribal effects as they relate to aquatic resources (not just fish), tribal trust obligations, and effects of the No Action and Action alternatives on the rivers cape, cultural resources, and cultural and social practices. Section 3.16 (Environmental Justice) addresses the issue of disproportionate effects.	No
IT_LT_1230_098-119	In the Environmental Consequences sections of Chapter 3 for each resource category, each discrete component of analysis includes three distinct parts: an italicized statement which provides the focus of the analysis, the analysis, and then a concluding statement that describes findings and may indicate whether the identified impacts are considered significant. The introduction and conclusion statements are paired. For example the section of interest of the comment author includes an introduction statement "Continued impoundment of water at the reservoir and decline in fisheries could disproportionately affect tribal people" and a concluding statement "Therefore, in the long term, tribes in the area of analysis would continue to be disproportionately affected, and their situation would remain an environmental concern under this alternative." The statement on p. 3.16-25 quoted by the comment author includes the word 'could' because this italicized introductory	No

Comment Code	Comment Response	Change in EIS/EIR
	sentence sets the bounds for the detailed analysis of the No Action/No Project Alternative on the tribal people. The paired statement to this introductory statement uses ‘would‘ to definitively describe the conclusions drawn in that analysis.	

IT_WI_1114_081

From: torina.case@klamathtribes.com[SMTP:TORINA.CASE@KLAMATHTRIBES.COM]
Sent: Monday, November 14, 2011 12:43:38 PM
To: BOR-SHA-KFO-Klamathsd; werner@wrinkledog.com
Subject: Web Inquiry: comments
Auto forwarded by a Rule

Name: Torina Case
Organization: Klamath Tribes

Subject: comments

Comment 1 - Approves of Dam Removal

Body: i just want to express my opinion of why the Klamath Basin Agreement needs to be adopted. I have lived in this basin all of my life. Grew up in Sprague River and now live along the Sprague River closer to Chiloquin. I used to swim in the Sprague River as a child and as i got older i began to notice the River was not as clean as it was when i was younger, I quit swimming in it and my kids don't get to swim in it either. I want everyone in the basin to have clean water to use, drink and swim in. this agreement allows for not only the return of Salmon to the Klamath Basin it also allows for clean water projects to begin from the top of the basin to where the dams are. unhealthy water makes for unhealthy people. Some people just don't realize the need for these projects to occur. This agreement does all of that and more.

Comment Author	Case, Torina
Agency/Assoc.	The Klamath Tribes
Submittal Date	November 14, 2011

Comment Code	Comment Response	Change in EIS/EIR
IT_WI_1114_081-1	Master Response GEN-1 Comment Included as Part of Record.	No