NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

Paul S. Weiland
D 949.477.7644
pweiland@nossaman.com

Refer To File # 290380-0004

VIA FERC ONLINE

April 18, 2022

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Comment on the Draft Environmental Impact Statement for the Lower Klamath Project

Dear Secretary Bose:

We are writing on behalf of Siskiyou County ("County") to express our significant concerns regarding the Draft Environmental Impact Statement ("DEIS") for the Proposed Lower Klamath Project Surrender and Removal ("Project") (Docket Nos. 14803-001 and 2082-063). Detailed concerns regarding the DEIS are included in SWCA's "Comments Regarding the Draft Environmental Impact Statement for Hydropower License Surrender and Decommissioning," attached hereto as Attachment I.

KRRC and PacifiCorp have submitted applications to FERC for hydropower license transfer and surrender to decommission and remove four lower Klamath River dams—three of which are located within Siskiyou County. On multiple occasions, the County has expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as other environmental and societal impacts, including air quality, climate change, cultural resources, hazardous materials, and traffic impacts, in addition to socioeconomic impacts on the local community. *See, e.g.*, *PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 28 (Mar. 15, 2018). The County has a strong vested interest in ensuring that FERC considers the Project's entire range of consequences on the County and its residents.

As set forth in SWCA's technical comments (Attachment I), the Project's environmental review documentation, as required under the National Environmental Policy Act, remains inadequate. Below is a brief summary of the County's concerns regarding the NOI and Project documentation, as further detailed in Attachment I.

- The DEIS only analyzes two alternatives: the no action and the proposed action. FERC has ignored its obligation to analyze all reasonable alternatives and specific requests in past comments to analyze a "Phased Approach Alternative" and a "Federal Takeover Alternative." Longstanding CEQ guidance clearly explains that the range of alternatives FERC is obliged to consider "includes all reasonable

alternatives, which must be rigorously explored and objectively evaluated." 46 Fed. Reg.18026 (March 23, 1981).

- The statement in the DEIS describing the purpose and need for the Project is improperly narrow, essentially precluding any alternative that has the potential to reduce the significant environmental impacts as compared to the KRRC's and PacifiCorp's dam removal vision. In short, it is presented to preclude all alternatives to dam removal.

- The Project documentation relies on outdated technical studies and surveys, with most being more than a decade old and some being substantially older. This is inconsistent with prevailing practices in undertaking environmental review of major infrastructure projects.

- The Fire Management Plan that is central to the analysis must be further amended to address previously raised stakeholder concerns.

- The analysis of socioeconomic effects, including environmental justice concerns, relies on outdated information to such an extent that it is unreliable and not a reasonable basis for impact analysis.

- Claims that the populations of federally endangered Lost River sucker and shortnose sucker in the reservoirs, which will be extirpated, are sink populations are conjecture and ignore the value of spatial diversity as a means to reduce the population-level impacts of stochastic events. KRRC refused to conduct monitoring for juvenile fish and lacks a basis in science for the contention that the reservoir populations do not reproduce.

- The EIS should include an evaluation of the potential negative impacts related to suspended sediments and a professional engineering analysis of rim stability.

- The permanent loss of reservoir-based recreation activities caused by dam removal should be considered a significant impact requiring mitigation.

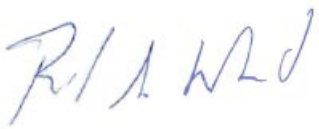
- The Project documentation does not address how proposed new recreational facilities will be maintained.

- The EIS should explain with more specificity the conclusion that the Project would mitigate all potential groundwater supply impairments post-drawdown.

- There are a range of impacts that are properly addressed through state and local environmental and land use controls, including with respect to waste (including demolition) disposal, temporary housing, dust abatement, hazardous materials management, and wastewater management and disposal. FERC should be clear that the applicants must comply with state and local regulatory requirements that address these and other public health and safety issues prior to taking any action to implement the proposed action.

In light of the extensive concerns identified in Attachment I, the County requests that FERC recirculate the EIS in a form that addresses the significant issues raised by the County. The existing DEIS is insufficient to meet the requirements of NEPA to analyze the "environmental impact of the proposed action" and "alternatives to the proposed action." 42 U.S.C. 4332(2)(C). These provisions have been interpreted to require FERC and other agencies to carefully consider detailed information concerning significant environmental impacts and to significant alternatives when an action may has significant impacts. Reliance on out of date information that does not reflect the actual impacts of the action is unlawful and is, by itself, a basis for recirculation. Please do not hesitate to contact us with questions.

Very truly yours,



Paul S. Weiland
Nossaman LLP

Attachments

ATTACHMENT I

INTRODUCTION

SWCA Environmental Consultants (SWCA) has reviewed the Draft Environmental Impact Statement (EIS) for Hydropower License Surrender and Decommissioning for the Proposed Klamath Hydroelectric and Lower Klamath Project (Project). The Draft EIS (Docket Nos. 14803-001 and 2082-063) was published by the Federal Energy Regulatory Commission (FERC) on behalf of the Klamath River Renewal Corporation and PacifiCorp (applicants) in the Federal Register on March 4, 2022.

Included below are comments on issue areas that have been raised by the County previously and that we believe FERC should more adequately address in the EIS.

PRIOR COMMENTING OPPORTUNITIES

Prior to the publication of the Draft EIS, the County provided comments on numerous documents related to the Project. Comment letters prepared by the County to address deficiencies in the Project, impact analysis, and mitigation measures include the following:

- Draft Definite Plan for the Lower Klamath Project ("Definite Plan") (dated October 16, 2018) (Appendix B)
- Draft Environmental Impact Report (EIR) for the Lower Klamath Project Relicense Project (dated February 26, 2019) (Appendix C)
- Draft Recreation Plan for the Lower Klamath Project (dated October 4, 2019) (Appendix D)
- FERC Supplemental Surrender Application for the Lower Klamath Project (dated June 3, 2021) (Appendix E)
- United States Army Corps of Engineers 404 Permit Application (July 8, 2021) (Appendix F)
- Notice of Intent to Prepare an Environmental Impact Statement (EIS) (August 17, 2021) (Appendix G)

The previous comment letters have been attached for the NEPA administrative record. The County has significant unaddressed concerns regarding the impacts of the proposed project, many of which have yet to be addressed despite the numerous comment letters provided to KRRC, FERC, and other regulatory agencies. For example, in the May 2021 comment letter on the Supplemental Surrender Application, the County brought forth many issues with the same Exhibits that are included in the Draft EIS. Although some Exhibits have been updated, many have not, and most importantly the County's concerns were never addressed. This Draft EIS comment memo, and attached Table 1, call out many of these same concerns.

ALTERNATIVES

The Draft EIS only proposes the action and no action alternatives. The County has suggested in the past, and suggests again, including a "Phased Approach" alternative. The Phased Approach Alternative would include the removal of the dams one at a time. After the initial dam is removed (presumed to be Copco Dam) and environmental health of the Klamath can be adequately monitored and determined to meet a certain biological threshold, the second upstream dam could be removed, and so on. This would provide a more scientifically driven approach to dam removal and ensure that sensitive environmental resources are protected from unproven, potentially catastrophic action related to simultaneous removal of all dams.

In addition, the proposed action, as described in the original Klamath Facilities Final Environmental Impact Statement/Environmental Impact Report prepared by the U.S. Department of the Interior and California Department of Fish and Game in December 2012 required federal legislation to execute the project (Vol I. page 1-3 of the Final EIR/EIS). Federal legislation was a requirement of the Klamath Hydroelectric Settlement Agreement. The proposed

action in the FERC EIS should consider federal legislation as the ultimate approval for the project given the scale of the dam removal and potential environmental impacts on a regional scale.

FERC should also consider a "Federal Takeover" alternative. The Federal Takeover alternative would include continued operation of the dams by the federal government (presumed to be the Bureau of Reclamation). The Federal Takeover alternative would reduce environmental impacts as compared to the proposed action by providing for the continued generation of clean energy, successful fish passage, and retention of other reservoir benefits including wildfire fighting capacity, eliminating impacts to suckers, and eliminating impacts to adjacent residential uses.

PURPOSE AND NEED

The purpose and need stated in the EIS for the proposed action, is to surrender the project license and remove the project features in order for "timely improvement of water quality and to address system-wide limiting factors including a lack of fish passage, high summer and fall water temperatures, blue-green algae blooms, disease incidence, impaired sediment supply and transport" (FERC 2022; pages 1-5 – 1-6). This purpose and need statement only points to the single solution of dam removal for the stated issues. In addition, the way these issues are presented in the EIS, suggests that continuation of operating the dams is the only cause, without acknowledging other variables such as climate change. The previous EIR/EIS prepared in 2012 and the Klamath Hydrologic Settlement Agreement noted that the project would only proceed if the removal of the four dam facilities would advance restoration salmonid populations of the Klamath Basin. The purpose and need should be expanded to include a discussion of the views of the prior science review panels regarding the anticipated ecological and socioeconomic costs and benefits of dam removal. This broadening of the purpose and need statement would allow for more consideration of the Phased Approach Alternative discussed above.

RELIANCE ON OUTDATED TECHNICAL STUDIES AND SURVEYS

As we noted throughout our comments on the Draft EIR, the NOI, and now on the EIS, the technical studies and surveys that have been relied upon are generally more than a decade old and are sometimes much older. For example, the water temperature analysis in the Water Quality Affect Environment Section (Section 3.3.3.2) of the EIS relies on outdated information ranging from 1998 – the mid-2000's to make determinations on the Project effects. Relying on old measurements such as this can skew the environmental analysis as more current trends (such as climate change) would not be accounted for. To be considered an accurate assessment of impacts from the proposed action, FERC should be mobilizing new surveys for the EIS, not relying on very outdated information on which to base environmental impact conclusions.

AFFECTED ENVIRONMENT AND ANALYSIS

Each environmental resource area below is of particular concern to the County. General comments regarding each resource and its analysis in the EIS are outlined in each section. Specific comments and concerns regarding particular analyses, conclusions, and mitigation measures for each resource are included in Table 1 (Appendix A).

FIRE SUPPRESION

As the County has mentioned in past comments, wildfire suppression is critically important for the health and safety of the community and environment. The EIS notes that while the conclusion is that the proposed action would have a less than significant impact on fire management agencies' ability to control wildfires, the Fire Management Plan amended by KRRC in December 2021, needs to be further amended to address stakeholder concerns (including Siskiyou County's). The County asks that prior to the FEIS, this fire management plan be updated to address questions/concerns related to: dry hydrant locations (including potential issues related to insufficient stream depth and

excessive lift requirements, and unsafe road conditions), river access, and dip tank placement. Sufficient details about these mitigation measures are needed to make a determination of less than significant.

The DEIS notes that a previous concern from the County regarding the strategic placement of permanent water resources along the Klamath corridor to support aircraft firefighting activities should be satisfied by KRRC's proposal to identify and maintain two aerial river access points in the reach currently inundated by the reservoirs. However, since these access points are currently underwater, they are likely to be filled (even temporarily) with sediments that may hinder access. In addition, helicopters may not be able to fill their water tanks in the vicinity of the post drawdown-reservoirs due to the canyons that will develop around the rim of the existing reservoirs and downstream. Helicopters require a relatively wide, flat topography in order to draft water safely. As part of the FMP or the EIS, additional adaptive management strategies or mitigation measures should be outlined to provide alternative dipping sites, or alternative water access (i.e. permanently placed dip tanks) if these identified underwater sites are not sufficient.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

In general, the Socioeconomic section of the EIS lacks detail and presents data that is superfluous (e.g. statewide unemployment and median housing data) to the proposed project. The Environmental Justice section has more detail but inadequately mitigates the identified impacts. Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and associated mitigation measures for impacts to socioeconomic and environmental justice communities should have been considered during the authoring of the EIS. Mitigation measures that may be relevant to environmental justice impacts include the recruitment of local labor, fair financial compensation for impacts to property values, training and development, and school funding, among others. In both sections, the analyses paint a rosy picture of the dam removal scenario without providing strong evidence for the case. Both sections assume generally improved conditions after dam removal. However, the County needs assurances that any economic and fiscal impacts due to dam removal are mitigated.

The EIS relies on older data; recreation use data is from the 2000s that was collected at a part of the initial relicensing process. For example, the following quote from the Recreation Section highlights the dated nature of the background sources:

> *"There is high to moderate demand for water-based recreation activities, including swimming and beach activities (California Department of Parks and Recreation, 1998; Oregon Parks and Recreation, 2003). Demand for fishing is high in California and moderate in Oregon (California Department of Parks and Recreation, 1998; Oregon Parks and Recreation, 2003)."*

These reports are from previous iterations of the Statewide Comprehensive Outdoor Recreation Plans (SCORP). A quick search of the state websites show more recent SCORP plans and sources (some of which are cited later in the document). Regardless, the conclusions drawn from the 1998 and 2003 plans are really a relic of that time and are not applicable to existing or future conditions at this point. The document really should only be citing the more recent SCORP reports and supporting documents.

Economic analysis is primarily from a 2013 Interior and NMFS report (*Klamath Dam Removal Overview Report for the Secretary of the Interior: An Assessment of Science and Technical Information*). The analysis is comprehensive but now dated. As shown in Table 1 (Appendix A), there are numerous assumptions acknowledged in the report that create a great deal of uncertainty and clearly the level of uncertainty increases over time.

Related to this point, the sections rely on data that is not always appropriate to the scale of analysis. This is a particular concern as the EIS correctly notes "…nearly all the adverse (Socioeconomic) effects associated with the proposed action are local" (p.3-485-486). Given the local nature of the impacts, there appears to be a lack of data collected at this scale (aside from the census tract data which is okay but not necessarily applicable to the Project).

Overall, additional local data would better identify impacts and provide clarity on appropriate mitigations. Additionally, FERC should ensure the preferred projects from the Recreation Facilities Plan are implemented.

AQUATIC RESOURCES AND THREATENED AND ENDANGERED SPECIES

The EIS analysis for the Lost River sucker (*Deltistes luxatus*) and shortnose sucker (*Chasmistes brevirostris*) species concluded that dam removal would only impact "sink" populations in the reservoirs downstream of Keno Dam. This was done without adequate justification (e.g., genetics, current population structure, etc.). For instance, the sucker populations downstream of Keno Dam should be denoted as metapopulations that have broken off from the main populations upstream to form new groups in the lower river, thus expanding the range of the endangered populations. This is a natural phenomenon in populations that are not closed, and individuals can freely immigrate or emigrate from the main population.

The USFWS denies that metapopulation theory applies to the listed Klamath sucker populations. Metapopulations are subpopulations that are a specific portion or part of a larger population that may differ substantially in density and demographics. Thus, allowing for different contributions to the structure and persistence of the overall population (Schindler, et al. 2015). Migrating fish play a critical role in maintaining genetic structure and genetic variation. By moving within connected patches, the migrating fish can contribute to reducing the probability of extinction (Schlosser and Angermeier 1995; Hanski and Simberloff 1997). By "rescuing" 600 suckers from J.C. Boyle and Copco No. 1 reservoirs, it seems the USFWS believes they have done their part to save the listed suckers in the lower reservoir and FERC staff agrees even though the move will eliminate any benefit that currently exists with the metapopulations to protect the larger population from extinction (Buettner, et al. 2005).

Furthermore, the USFWS states both species have low resiliency. Disregarding Lost River and shortnose suckers downstream of Upper Klamath Lake on the basis of hybridization and categorization of these as a "sink" population reduces resiliency of these species and their ability to rebound after catastrophic events. Therefore, the USFWS should update information on the degree of hybridization in these species downstream of Upper Klamath Lake prior to establishing them as a "sink" population.

In addition, the County has reviewed the USFWS Biological Opinion that was released on December 22, 2021. Our comments on the Biological Opinion are included as Appendix H.

GEOLOGY AND SOILS

The effects on bank stability from the proposed actions presented by the Staff only address the potential bank stability effects within the project areas (i.e. within the dam and reservoir footprints) that will result from the initial dam removals and reservoir drawdown, which are described in the Reservoir Area Management Plan (RAMP, Exhibit J). However, the removal of the four dams and drawdown of the reservoirs will constitute an extreme watershed hydromodification on the entire Klamath River basin that will result in channel responses and secondary and long-term bank stability issues in the Klamath River and tributaries not only within the Project areas, but also in the downstream reaches of the Klamath River. These channel responses can and will have significant impacts on the river and tributary channels themselves as well as impacts on the adjacent lands via channel bank failure and migration. Natural stabilization of the channels will occur over time through natural geomorphic processes, but this could take many decades or longer, and the excessive sediment loads in the Klamath River resulting from these secondary bank instabilities associated with the channel responses will negatively impact the water quality of the river through this entire period.

The RAMP describes restoration, monitoring and adaptive management to address the initial bank stability effects resulting from the dam removals and reservoir drawdown within the hydroelectric reach of the Klamath River and tributaries within this reach, including stream restoration relative to geomorphic, aquatic habitat, and fish passage conditions. This plan appears adequate for this reach but does not address the negative secondary bank stability

effects that are likely to occur downstream of the hydroelectric reach, as described above, and that are likely to result in impaired stream function from a geomorphic, aquatic habitat, and fish passage perspective throughout the downstream reaches. It is recommended that the stream geomorphic, aquatic habitat, and fish passage restoration, monitoring and adaptive management components within the RAMP be expanded to include the Klamath River and tributary outfalls downstream of the hydroelectric reach.

The effects on sediment transport from the proposed actions presented by the Staff again only consider the sediment impacts from the initial release of the impounded sediments from the dam removal and do not address the secondary and long-term excess sediment issues that will result from the long-term channel response and evolution resulting from the extreme watershed hydromodification that the dam removals, reservoir drawdowns, and reservoir sediment discharges constitute. Again, it is recommended that the stream geomorphic, aquatic habitat, and fish passage restoration, monitoring and adaptive management components within the RAMP be expanded to include the Klamath River and tributary outfalls downstream of the hydroelectric reach.

CULTURAL RESOURCES

As the Draft EIS has not provided any cultural or tribal resource-related exhibits (such as the Historic Properties Management Plan, Tribal Cultural Resource studies, etc.), the following comments here and in Table 1 (Appendix A), are only related to the text in the EIS. In general, cultural and tribal cultural resource studies are not complete for the Project. Effects to these resources cannot be fully assessed until all resources and potential impacts have been identified. FERC acknowledges this in several locations in their narrative and have made recommendations for additional information to be gathered or activities to be completed for the project. It is recommended that these be requirements, not just recommendations, and that FERC should not finalize their decision prior to reviewing all the proposed modifications.

FERC also proposes a preferred alternative to the proposed action that they call the “Proposed Action with Staff Modifications.” The modifications suggested for cultural and Tribal resources include significant revisions to the Historic Properties Management Plan (HPMP; Exhibit F) and adding pre- and post-reservoir drawdown inspections for cultural resources to the Reservoir Area Management Plan (RAMP; Exhibit J) (xxxvii and 4-32). The County has no specific comments on the requirements for the RAMP revisions except that they be clear, enforceable and are consistent with all other requirements outlined in the HPMP and EIS. Additional comments related to the HPMP, the built environment as it relates to historic properties, traditional cultural properties, and tribal consultation can be found in Table 1 (Appendix A).

REFERENCES

Buettner and The Klamath Independent Scientific Review Panel. 2005. The current risk of extinction of the Lost River and shortnose suckers. Cascade Quality Solutions, Klamath Falls, Oregon.

Dowling TE, Markle DF, Tranah GJ, Carson EW, Wagman DW, May BP (2016). Introgressive Hybridization and the Evolution of Lake-Adapted Catostomid Fishes. PLoS ONE 11(3): e0149884. Doi: 10.1371/journal.pone.0149884.

Hanski, I. and D. Simberloff. 1997. The metapopulation approach, its history, conceptual domain, and application to conservation. Pages 1-26 in I. Hanski and M.E. Gilpin, editors, metapopulation biology: ecology, genetics, and evolution. Academic Press, San Diego, California.

Moyle, Peter & Lusardi, Robert & Samuel, Patrick. (2017). State of the Salmonids II: Fish in Hot Water Status, threats, and solutions for California salmon, steelhead and trout.

Schindler, D., J.B. Armstrong, and T.E. Reed. 2015. The portfolio concept in ecology and evolution. Frontiers in Ecology and the Environment 13:257-263.

Schlosser, I.J. and P.L. Angermeier. 1995. Spatial variation in demographic processes of lotic fishes: conceptual models, empirical evidence, and implications for conservation. Pages 392-401 in J.L. Nielson, editor. Evolution and the aquatic ecosystem: defining unique units in population conservation. American Fisheries Society, Symposium17, Bethesda, Maryland.

APPENDIX A: TABLE 1. SISKIYOU COUNTY COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR HYDROPOWER LICENSE SURRENDER AND DECOMMISSIONING

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
EIS, Proposed Action	Section 2.5	Reasonably Foreseeable Trends and Planned Actions	Climate change is not mentioned in the context of reasonably foreseeable trends. Since the project is relying on a natural, free flowing hydrograph to produce enough water to transport sediments through the Klamath river to the Pacific Ocean, climate change needs to be addressed in this section, particularly in the context of increased drought.
EIS, Proposed Action	Construction Management Plan, Exhibit B	Table 3-2. Proposed Roadway and Access Improvements	Reference to Siskiyou County permits is lacking in Exhibit B. KRRC must obtain building permits for all bridge construction and associated demolition permits for any bridges that are proposed to be replaced.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.6.1 Copco No. 1 Development	Siskiyou County, as previously stated in correspondence with KRRC, has major concerns regarding the project following Siskiyou County's Demolition Ordinance (Siskiyou County Code Title 10 Chapter 13; https://library.municode.com/ca/siskiyou_county/codes/code_of_ordinances?nodeId=TIT10PLZO_CH13DEDERERE). Siskiyou County is strongly opposed to the on-site disposal of any dam demolition components including concrete, embankment earth, structures etc. The County requires that all components and structures associated with the dam be completely removed and reclaimed to the conditions prior to construction of the dams. Additionally, the County requires that all dam components be recycled to the maximum extent, an all materials must be sampled and analyzed for adverse contamination in order to be recycled/disposed of appropriately. The following bullets describe the County's request in regards to demolition and construction of the proposed project: 1) Satisfactorily sample and test soils around all capacitors, transformers and associated equipment that potentially contained Polychlorinated biphenyl compounds (PCB's). All sample data must be provided to the County for review and determination for soil removal and proper disposal. 2) Concrete Dams and components: Analyze concrete and provide testing results for asbestos containing material. If concrete is free of asbestos concrete material is to be recycled and not buried and or disposed of on site. Concrete is not to be utilized as rip rap. KRRC's contractor is not to place concrete rubble along the right river bank just upstream of the powerhouse to improve the flow conditions past the structure as proposed. Natural rock may be utilized for said proposed purpose. If concrete is found to be non-hazardous Identify and procure contracts with permitted mine quarries that are capable of recycling concrete material or recycle near the source and utilize for road base. The practice of landfilling waste material is not consistent with AB 939 which requires local county and city jurisdictions to maximize the use of all feasible source reduction, recycling, and composting. The current plan for the proposed project is to construct disposal sites at Copco No. 1 and Copco No. 2 as described in Appendix B (California Waste Disposal Plan) of Exhibit N (Waste Disposal and Hazardous Materials Management Plan). The disposal sites are intended for the purpose of landfilling concrete rubble generated from the dam removal project. Siskiyou County would require that this material be recycled and if contaminated that it be landfilled at an approved site.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp	"Other related facilities" needs to be defined in order to assess the impact of Copco No. 1 construction camp.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.3 Access Roads	The performance standard for all access roads that will be met upon completion of the project needs to be described in detail. The language as it reads is too vague to allow Siskiyou County the opportunity to adequately assess if these standards meet the County's.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.4 Laydown and Staging Area	Prior to grading, KRRC and/or their contractors need to provide a copy of the NCRWQCB NPDES/storm water pollution prevention plan to Siskiyou County for review, to determine if the plan meets the County's standards. Consultation with Siskiyou County regarding air pollution control and development of a dust abatement plan is requested by the County prior to project implementation. In addition, the County requests that KRRC or its contractor(s) certify that project work will not be conducted within a serpentine (asbestos containing rock) zone.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.4 Laydown and Staging Area, Figure 3-1	Siskiyou County requests that this figure include the location of the hazardous materials storage area and designated hazardous waste storage container location(s). As is, it's is difficult for the County to ascertain the hazardous of the proposed laydown areas and the office trailer locations.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.6 Temporary Power	Siskiyou County recommends that KRRC obtain all required permits from state/federal/local jurisdictions and provide FERC with routine inspections.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.8 Fuel Station and Hazardous Materials Storage	Siskiyou County requests that KRRC provides a hazardous materials business plan (HMBP) to the Department of Community Development, Environmental Health Division CUPA and submit via the California Environmental Reporting System (CERS) hazardous materials that exceed standard threshold quantities, which are: 55 gallon of flammable liquid, 500 lbs. of a solid, 200 cubic feet of a flammable gas (at standard temperature and pressure). The HMBP should identify hazardous material inventory and associated placarding, and required secondary containment for all fuel storage and any other liquid hazardous materials. KRRC should also provide material data sheets and identify on site location where they will be stored and secured for easy employee access.

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.9 Utility Water	Siskiyou County should provide signage on all utility water storage containers/tanks etc. Identify as “non-potable water”.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.11 Sanitary Facilities	KRRC or their contractor(s) should identify (label) all waste water holding tanks/bladders as “waste water” and maintain to prevent off-site spillage protection. In addition, KRRC or their contractor(s) should specify waste water service frequency and designate licensed waste water hauler and certified disposal facility.
EIS, Proposed Action	Construction Management Plan, Exhibit B	3.0 Copco No. 1 Construction Camp, Section 3.12 Sensitive Areas	KRRC or their contractor(s) need to provide the Siskiyou County Community Development and Natural Resources Departments with the sensitive resources report and associated maps identifying and describing all sensitive areas prior to the initiation of project work.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village)	It the County's understanding that temporary housing facilities are proposed to be located with the office primarily in the form of recreational vehicles. We request that KRRC and/or their contractor(s) ensure that all recreational vehicles/trailers are self-contained and that all waste water is properly disposed of.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.3 Access Roads	The performance standard for all access roads that will be met upon completion of the project needs to be described in detail. The language as it reads is too vague to allow Siskiyou County the opportunity to adequately assess if these standards meet the County's. Currently, the plan does not stipulate access road status once the project is completed.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.4 Laydown and Staging Area	Prior to grading, KRRC and/or their contractors need to provide a copy of the NCRWQCB NPDES/storm water pollution prevention plan to Siskiyou County for review, to determine if the plan meets the County's standards. Consultation with Siskiyou County regarding air pollution control and development of a dust abatement plan is requested by the County prior to project implementation. In addition, the County requests that KRRC or its contractor(s) certify that project work will not be conducted within a serpentine (asbestos containing rock) zone.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.4 Laydown and Staging Area Figure 4-1	Siskiyou County requests that this figure include the location of the hazardous materials storage area and designated hazardous waste storage container location(s). As is, it's is difficult for the County to ascertain the hazardous of the proposed Copco Villages.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.5 Temporary Housing	Siskiyou County recommends that KRRC obtain all required permits from state/federal/local jurisdictions and provide FERC with routine inspections. Permits and inspections should be completed for all temporary housing units and associated sanitary sewer laterals, yard hydrants, power, etc.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.6 Temporary Power	Siskiyou County recommends that KRRC obtain all required permits from state/federal/local jurisdictions and provide FERC with routine inspections.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.9 Fuel Station and Hazardous Materials Storage	Siskiyou County requests that KRRC provides a hazardous materials business plan (HMBP) to the Department of Community Development, Environmental Health Division CUPA and submit via the California Environmental Reporting System (CERS) hazardous materials that exceed standard threshold quantities, which are: 55 gallon of flammable liquid, 500 lbs. of a solid, 200 cubic feet of a flammable gas (at standard temperature and pressure). The HMBP should identify hazardous material inventory and associated placarding, and required secondary containment for all fuel storage and any other liquid hazardous materials. KRRC should also provide material data sheets and identify on site location where they will be stored and secured for easy employee access.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.12 Sanitary Facilities	KRRC should consult with the CA State Water Board to prove out, locate, design, permit for inspection the proposed on-site waste water treatment system. KRRC should also incorporate plans to decommission the system upon completion of the project. The construction management plan needs to include specifics on the waste water service frequency and designate licensed waste water hauler and certified disposal facility for the proposed Copco Village.
EIS, Proposed Action	Construction Management Plan, Exhibit B	4.0 Copco No. 2 Construction Camp (Copco Village), Section 4.13 Sensitive Areas	KRRC or their contractor(s) need to provide the Siskiyou County Community Development and Natural Resources Departments with the sensitive resources report and associated maps identifying and describing all sensitive areas prior to the initiation of project work.
EIS, Proposed Action	Construction Management Plan, Exhibit B	5.0 Iron Gate Construction Camp, Section 5.4 Laydown and Staging Area, Figure 5-1	Siskiyou County requests that this figure include the location of the hazardous materials storage area and designated hazardous waste storage container location(s). As is, it's is difficult for the County to ascertain the hazardous of the proposed laydown areas and office trailer.
EIS, Proposed Action	Construction Management Plan, Exhibit B	5.0 Iron Gate Construction Camp, Section 5.6 Temporary Power	Siskiyou County recommends that KRRC obtain all required permits from state/federal/local jurisdictions and provide FERC with routine inspections.

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
EIS, Proposed Action	Construction Management Plan, Exhibit B	5.0 Iron Gate Construction Camp, Section 5.8 Fuel Station and Hazardous Materials Storage	Siskiyou County requests that KRRC provides a hazardous materials business plan (HMBP) to the Department of Community Development, Environmental Health Division CUPA and submit via the California Environmental Reporting System (CERS) hazardous materials that exceed standard threshold quantities, which are: 55 gallon of flammable liquid, 500 lbs. of a solid, 200 cubic feet of a flammable gas (at standard temperature and pressure). The HMBP should identify hazardous material inventory and associated placarding, and required secondary containment for all fuel storage and any other liquid hazardous materials. KRRC should also provide material data sheets and identify on site location where they will be stored and secured for easy employee access.
EIS, Proposed Action	Construction Management Plan, Exhibit B	5.0 Iron Gate Construction Camp, Section 5.9 Utility Water	Siskiyou County requests that signage be provided on all utility water storage containers/tanks, etc. to identify them as "non-potable water".
EIS, Proposed Action	Construction Management Plan, Exhibit B	5.0 Iron Gate Construction Camp, Section 5.11 Sanitary Facilities	all waste water holding tanks/bladders, etc. should be identified by labeling as "waste water" and maintained to prevent off-site spillage protection. The construction management plan needs to include specifics on the waste water service frequency and designate licensed waste water hauler and certified disposal facility for the proposed office location.
EIS, Proposed Action	Construction Management Plan, Exhibit B	5.0 Iron Gate Construction Camp, Section 5.12 Sensitive Areas	KRRC or their contractor(s) need to provide the Siskiyou County Community Development and Natural Resources Departments with the sensitive resources report and associated maps identifying and describing all sensitive areas prior to the initiation of project work.
Land Use / Fire	Fire Management Plan, Exhibit P, Appendix D	Long-Term Fire Management Measures	The current FMP states that the long-term fire management measures will be completed through cooperative agreements with fire agency successors. We assume that these successors are the current fire and wildfire response crews that operate in the area, but this should be clarified. The cooperative agreements have yet to be established at the publishing of the DEIS, and there is no mention to what will be included in the cooperative agreement. Prior to finalization of the FEIS, clarification on these agreements should be included in either an updated FMP, or in the FEIS.
Land Use / Fire	Fire Management Plan, Exhibit P, Appendix D	Long-Term Fire Management Measures; Post Removal Management Measures	Who is responsible for long-term maintenance of the fire management measures? As of now, the FMP states that these costs will be addressed in the cooperative agreements. If the costs are put onto the already limited resources of the Siskiyou County Fire Protection Districts, compensation from KRRC will be required.
Land Use / Fire	Fire Management Plan, Exhibit P, Appendix D	Long-Term Fire Management Measures; Conditions after Dam Removal	Outreach to landowners and approvals are necessary prior to the implementation of a camera monitoring system.
Land Use / Fire	Fire Management Plan, Exhibit P, Appendix D	Long-Term Fire Management Measures; Conditions after Dam Removal	As mentioned in the FMP, the current reservoirs have been providing a large fuel break in an area that is prone to wildfires. This large fuel break also protects homes/properties on either side of the reservoirs. With the removal of the dams, there will be a very narrow fuel break of just the river, especially after revegetation efforts are implemented. Therefore, is there any plans to implement new fire breaks within the aerial suppression unit (ASE)? If not, the County recommends that a mitigation measure of implementing fire breaks within the ASE be part of the FEIS.
Land Use / Fire	Fire Management Plan, Exhibit P, Appendix D	Long-Term Fire Management Measures; Conditions after Dam Removal	"The majority of the reservoir sediment is silt- and clay-sized sediment (BOR, 2011), which will be easy for the Klamath River to erode and transport. As such, existing deep pools in the mainstem river will not experience infilling from mobilized reservoir sediments and will continue to serve as a water source for aerial firefighting crews." This statement does not take into account changes in the hydrograph and increased drought conditions due to climate change. These changes over time may likely result in sedimentation of "existing deep pools" which therefore may not serve as a long-term solution for fire management and access to water. An adaptive management plan is requested to address the potential impacts of climate change, potential lack of water in the Klamath, and sedimentation of pools.
Land Use / Fire	Fire Management Plan, Exhibit P, Appendix D	Long-Term Fire Management Measures; Firefighting Capabilities	"Flows in the free-flowing Klamath River following dam removal will be more than sufficient to replenish water even under the most extreme drafting conditions." This statement disregards the potential effects of climate change, as well as historical data, which indicates that the Klamath has not always been perennially wet. An adaptative management plan is requested to address the potential impacts of climate change and potential lack of year around water in the Klamath.
Recreation	Page 2-37	Recreation sites to be removed	Thirteen existing recreation sites, including day use, boat launches and campgrounds will be removed and one relocated. Five areas will be constructed along the new river's edge but none of these are designed for camping which eliminates an important recreational use in the area and will subsequently reduce cash flow in the local economy.

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
Recreation	Page 3-401	“The project recreation sites that would be removed include 44 developed and informal campsites at 5 locations adjacent to Iron Gate Reservoir, and picnic sites, restrooms, and shoreline access at all project recreation sites. The removal of the reservoirs and the adjacent reservoir-based recreation sites (campgrounds and day use areas) would result in a permanent and significant, adverse effect on locally available open-water recreation opportunities and for the recreation users who visit these sites for other uses including shore-based angling, picnicking, and camping.”	This quote is taken from the recreation section as recreation is one of the key components of the local economy. The project will create a loss of low-cost outdoor recreation for communities in proximity to the existing reservoirs. The County needs to be assured that the recreation facilities plan is implemented. Further, it is not clear that the potential new opportunities will properly compensate for the lost opportunities and confirm the plan serves the needs of Siskiyou County residents (and EJ communities in particular).
Socioeconomics	Page 3-485	"The analysis conducted by Interior and NMFS (2013) used the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (U.S. Water Resources Council, 1983) to evaluate both regional and national economic effects of decommissioning the Lower Klamath Project."	Economic analysis was from a 2013 Interior and NMFS report (Klamath Dam Removal Overview Report for the Secretary of the Interior: An Assessment of Science and Technical Information). The economic model that is relied upon in the EIS was completed as a part of the secretarial determination. The model notes numerous factors that create uncertainty in the project economic conditions: (1) future hydrology; (2) crop prices; (3) electricity prices; (4) fisheries; (5) capital and mitigation costs; (6) the timing, nature, extent, and success of the KBRA measures; (7) changes in recreation use; (8) non-use value. Non-use value is a somewhat controversial measure that estimates the value of a free-flowing river (in this case) to people who do not directly use the resource. Without questioning the integrity of the modeling, the model includes a great deal of uncertainty accounting for the factors listed above. For example, there have been changes in, for example, recreation preferences over time among other factors.
Socioeconomics	Page 3 - 485	"The proposed action would not require long-term annual operations and maintenance expenditures for operation of the hydroelectric facilities. As a result, the regional economy would lose approximately 49 jobs relative to existing conditions."	The EIS notes that there would be 49 job losses (related to hydroelectric O&M) but does not include complete estimates of job losses related to the loss of recreation. There are data that estimate recreational jobs related to salmon and steelhead fishing under current conditions but with no prediction of future conditions (3-502). The EIS generally assumes that overall recreation economic activity will increase after the dams are removed but the evidence provided is weak and/or unclear. Further, the assumed benefits of dam removal appear to be regional while the costs appear to be concentrated in Klamath County, OR and Siskiyou County, CA.
Socioeconomics	Page 3-486	“Interior’s analysis did not include analysis of any benefits that would accrue from increases in recreational use and tourism due to restoration of the Klamath as an unimpounded, free-flowing river.”	The EIS discusses potential recreational benefits related to dam removal but does not include any quantification of these benefits.
Socioeconomics	Page 3-494	“Table 3.12-7. Property and sales tax revenues in Oregon and California counties in the vicinity of the project, 2019–2020” shows tax revenues for the counties directly affected by the project.	The EIS section does include a very brief discussion of tax revenues but does not include an estimate of tax revenue reduction (in particular related to PacifiCorp activities). However, this is discussed in the EJ section.
Environmental Justice	Page 3-511	“The deposition of reservoir sediment may result in changes in the character of soil along streambanks for up to 8 miles below Iron Gate Dam and could cause arsenic contamination, depending on the type of soil deposition that occurs. To mitigate for sediment deposits on private land related to drawdown activities, KRRC would assess sediment deposits on parcels with a residential or agricultural land use for which the property owner has notified KRRC of a potential sediment deposit that may be associated with reservoir drawdown activities. If the deposit appears to be consistent with the physical sediment properties of project reservoirs, KRRC would test the sediment for arsenic. If the concentration of arsenic in the deposited sediments exceeds local background levels and human health residential screening levels established by EPA or the California EPA, KRRC would remediate the deposited sediments to local background levels through removal of the deposited sediments or soil capping, if sediment removal is infeasible or poses a greater risk than soil capping. Therefore, with implementation of mitigation measures, effects on environmental justice communities associated with contaminated sediment would be short term and less than significant.”	The EIS notes that this measure will require increased public outreach to ensure residents reach out the KRRC if their land is impacted by reservoir sediment. Given the potential for EJ communities to be impacted by arsenic on their lands, it may be necessary for the KRRC to go further and to monitor downstream properties during drawdown operations. Although the potential exists in all communities, residents in EJ communities may not be informed about the project nor what to do if their property is impacted.
Environmental Justice	Page 3-512	“KRRC proposes payments to mitigate effects on groundwater wells that are affected by the drawdown of J.C. Boyle Reservoir or that are within 1,000 feet of Copco No. 1 Reservoir, if residents agree to KRRC’s well monitoring program”	The EIS suggests that KRRC needs to be more proactive about reaching out to EJ communities with this program. Beyond this, are these the only areas impacted by declining groundwater (due to reservoir drawdown and decommissioning)? A preferred mitigation would compensate all users of groundwater that are impacted by the drawdown (particular those in the identified EJ communities).

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
Environmental Justice	Pages 3-514 & 3-517	"…with the greatest adverse effects on individuals with shoreline access and those who primarily rely on the reservoirs for recreation, including members of environmental justice communities." "Although it is unclear the extent to which local community members desire or engage in whitewater boating as a primary form of recreation."	The EIS implies that we do not know enough about the EJ communities' recreational preferences to understand how the project may affect their use of the area. Additional outreach to these communities is needed to understand how these changes may affect them. Further, outreach is needed in connection to the recreation facilities plan to ensure that a local point of view is considered.
Environmental Justice	Page 3-517	"However, it is likely that additional jobs would be created from new recreational opportunities on the river for fishing and whitewater boating, which would have a beneficial effect on job creation."	The EIS provides an assumption about future jobs associated with recreation use under dam removal. However, there is no discussion regarding the existing economic activity.
Environmental Justice	Page 3-519	"The proposed noise and vibration control plan (NVCP) (described further in section 3.15, Air Quality and Noise) would minimize short-term outdoor noise effects and would require a final NVCP from the construction contractor. However, the effects on receptors, including individuals living in environmental justice communities, would be short term and significant."	Noting that mitigation (NVCP) is not enough to lower impact to less than significant.
Environmental Justice	Page 3-520	"Implementation of mitigation measures during project deconstruction could reduce the temporary effects on environmental justice communities, but these measures rely on the quality of communication between KRRC and the environmental justice communities to be effective. Thus, we strongly recommend that KRRC communicate with the identified communities. When not mitigated, these temporary effects would disproportionately affect environmental justice communities because of their localized nature and because most project facilities (especially those associated with Copco No. 1 Reservoir) are located in environmental justice communities."	It is critical that project proponents reach out to both EJ communities and the County at large. Much of the social data that is presented is either dated (recreation use data is nearly 20 years old) or not applicable to the project (general census data).
Environmental Justice	Page 3-521	"Long-term, potential adverse effects on environmental justice communities would be related to groundwater wells, fire management, reservoir angling, changes in access to and type of recreation opportunities, and changes in county tax revenues." "Removal of the reservoirs would also result in adverse effects associated with state and local fire management. These effects would be borne by both environmental justice communities and the surrounding project area and would be mitigated through the proposed FMP." "Changes in fishing opportunities as the aquatic species in the project area move from lake-dwelling panfish to riverine species, like salmon and steelhead, would affect environmental justice communities that use the reservoirs for subsistence, including the Hmong community in Siskiyou County, California. Environmental justice communities may not have the same ability to easily switch to alternative fishing locations as reference populations."	The EIS acknowledges multiple potential adverse effects on Siskiyou County communities however there are limited mitigation measures to address these as the EIS generally assumes improved economic conditions after dam removal. This is in spite of a lack of strong evidence for this conclusion. As such, the County should seek assurances (presumably in the form of mitigation) that they will be made whole if the dam removal does result in worsened conditions. Further, the EIS makes a strong point about the possibility that EJ communities (including the Hmong residents) may not have the ability to easily switch from flat water conditions to a river environment. This supports the case for more local outreach.
Environmental Justice	Page 3-522	"As indicated in the comments of the County of Siskiyou, counties use tax revenue to fund programs such as public health, welfare, education, and a variety of other services. Tax revenue declines, estimated to be between $600,000 and $800,000 per year in Siskiyou County". "If reductions in tax revenues affect programs that benefit low-income individuals, adverse effects on environmental justice populations may be disproportionate."	The EIS does not directly address the potential loss in revenue as it states the relationship is unclear. Siskiyou County should seek any loss in tax revenue associated with dam removal. The EIS notes that there could be an increase in property values near the river after the dams are removed. It is certainly possible – but we do not know this. In general, the conclusions made in the EIS are vague and generally assume a positive outcome. Overall – Siskiyou County needs protection from "bad" outcomes. The EIS does not identify the potential bad outcomes so no (or minimal) mitigation is included.
Cultural Resources	Historic Properties Management Plan	N/A	The County recommends that this be a revised HPMP, not just a supplemental. Important details inevitably get lost when practitioners have to sort through multiple documents. Since the HPMP has not yet been finalized, it should be a cohesive document containing all relevant information collected the date of the Final EIS.

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
Cultural Resources	Page 4-69	“The terms of the agreement would ensure that KRRC addresses and treats all historic properties identified within each project APE by implementing a revised HPMP for the project."	The County endorses the Commission’s proposal to enter into a Programmatic Agreement (PA) with the California and Oregon SHPOs, participating Tribes, and project proponents to ensure that all Section 106 requirements are met over the life of the project if they can’t be met prior to project implementation under a traditional MOA (e.g. some activities must take place post-drawdown and thus need ongoing planning and support) (Section 3.10.4.3, 4-69). However, the document only states “The terms of the agreement would ensure that KRRC addresses and treats all historic properties identified within each project APE by implementing a revised HPMP for the project” (4-69). Additional detail regarding enforcement, accountability and schedule should be included in this discussion.
Cultural Resources	Page 3-455	“KRRC anticipated that Phase II fieldwork would begin in June 2021 and that a final report containing the results of the work, recommendations of National Register eligibility, and assessment of effects would be filed in February 2022”	Results of this study are not included in the DEIS; it is unclear if this study is complete. Dates, status and results of this study should be updated and incorporated into the narrative prior to finalizing the EIS.
Cultural Resources	Section 2.1.2	This section discusses work occurring outside the project boundary, including road work, modifications to Fall Creek Hatchery, installation of dry hydrants along several rounds (outlined in the FMP) and installation of fire monitoring detection systems (outlined in the FMP) (2-4).	The Commission should ensure that these work areas are included in the HPMP analysis and treatment recommendations.
Cultural Resources	Section 3.10.4.1, 3-467	The Commission identified several inconsistencies in the identification of resources within the APE and ADI in the technical documents, information provided to the Commission for the DEIS and the HPMP.	All inconsistencies must be clearly resolved and documented in the updated EIS and HPMP prior to finalizing the EIS.
Cultural Resources	Section 3.10.4.1, 3-468	The Commission identified several inconsistencies in the identification of resources within the APE and ADI in the technical documents, information provided to the Commission for the DEIS and the HPMP	All inconsistencies must be clearly resolved and documented in the updated EIS and HPMP prior to finalizing the EIS.
Cultural Resources	Page 3-456	“The Klamath River Bridge was recommended eligible for listing on the National Register in 2004, but a new evaluation is pending completion of construction activities.”	This statement seems to imply that construction activities would change the eligibility status of the bridge. This statement should clarify what construction activities are occurring and in what context (i.e. is it a separate project or is it part of the Proposed Action?) and results of the evaluation in order to adequately address effects to the resource as part of the Proposed Action. Modifications to an eligible property that make it no longer eligible are an adverse effect.
Cultural Resources	Page 3-457	“KRRC recommends that additional research is required to fully evaluate the cable suspension Pedestrian Bridge 1, the Central Oregon and Pacific Railroad Bridge, and Pedestrian Bridge 2”	This research and evaluation should be completed prior to finalizing the EIS and results included in the EIS and HPMP.
Cultural Resources	Page 3-457	“KRRC also does not recommend the Fall Creek Bridge as eligible because it was built in 1969 and does not meet the National Register significance criteria”	A bridge constructed in 1969 is over 50 years old; the age is therefore not a reason to consider a property ineligible. This comment should be clarified.
Cultural Resources	Page 3-457	“The remaining five bridges are recommended as ineligible for listing on the National Register because they do not yet meet the 50-year age threshold for eligibility”	There should be a statement regarding whether they will meet the threshold during project implementation and if so, include in the HPMP how and when they plan to evaluate them.
Cultural Resources	Page 3-457	“KRRC states that it would conduct further survey and research to evaluate the National Register eligibility of these private property resources within the California part of the ADI, specifically commercial, residential, and recreational properties in Hornbrook, Yreka, and Montague (KRRC, 2021n)”	There is no indication when this will happen or how KRRC will be held accountable for ensuring this occurs. The studies need to be conducted prior to finalizing the EIS and the results included in the EIS and HPMP.
Cultural Resources	Pages 3-464, 3-465, 3-469	The DEIS states in several places that consultation and TCP reports are not yet complete, and that project-related effects on TCPs within the APE And ADI have not been identified or analyzed (3-464, 3-465, 3-469). The document further states that measures for mitigating impacts to TCPs will be developed in consultation with the California and Oregon SHPOs and participating tribes and that, “In its comments filed on August 19, 2021, Interior states that a Tribal perspective on resource effects should also be addressed” (3-465).	More detail needs to be included regarding when and how these results will be documented and incorporated into the final decision and management documents.
Cultural Resources	Section 3.10.4.2	N/A	This section is basically a placeholder for the results of the TCP studies and tribal consultation and is currently insufficient. Dates, status and results of these studies/consultations should be updated and incorporated into the narrative prior to finalizing the EIS.

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
Cultural Resources	Table 4-1, 4-24	The Commission states in their Proposed Actions with Staff Modifications that the project would have a “Permanent, significant, beneficial effect” on Traditional Cultural Properties due to restoring the river for salmon runs, traditional foods, Tribal cultural practices and fluvial landscapes.	While beneficial to these aspects of tribal cultural heritage, there may also be specific TCPs with physical or archaeological manifestations (e.g. campsites, burials, etc.) that may be adversely affected (pending identification of TCPs in studies). For example, many tribal and community members have expressed concern over the potential impacts to known historic-era Native American burials near on of the Copco facilities. Thoughtful and specific treatments for such resources must be considered and incorporated into the HPMP and EIS. The EIS should account for those effects in their final findings for the proposed action (e.g. add possible short-term, significant adverse effects in addition to long-term beneficial effects).
Cultural Resources	Section 4.2; page 4-28	Under “Commission Staff Recommendations” the document states that tribes generally are in favor of the project some tribes have expressed concerns regarding sediment passage and exposure of significant cultural resources.	Even though tribes support the project overall, these concerns should be captured and detailed in the Traditional Cultural Resources and Tribal Trust discussions, not just mentioned in passing here.
Cultural Resources	Page 3-463	The DEIS states that measures are “pending completion of the Phase II studies, National Register evaluations, and determination of effects.”	As noted for the other outstanding assessments, the studies need to be conducted prior to finalizing the EIS and the results included in the EIS and HPMP.
Cultural Resources	Page 3-464	“KRRC proposes to prepare Historic American Building Survey/Historic American Engineering Record/Historic American Landscapes Survey documentation to mitigate the adverse effects of the proposed decommissioning on historic hydroelectric structures that are eligible or listed on the National Register”	Typically, HABS/HAER is not considered sufficient mitigation for demolition of a historic structure. This is the bare minimum. The DEIS states that KRRC also proposes a marketing plan and an interpretive plan as mitigation. These should be robust documents to account for the complete removal of eligible historic properties. Additional mitigation measures should be considered (e.g. historic context statements, digital story maps, education modules, etc.).
Cultural Resources	Page 3-464	In regard to the privately held structures in the ADI, the document states, ”as private properties, KRRC does not have control over these resources. Should it be determined that the proposed project would adversely affect any of these resources, KRRC would propose appropriate mitigation measures”	Mitigation measures must be included in the EIS if they cannot be included in the HPMP due to jurisdiction issues. A consideration for the County regarding the mitigation measures is what is the County’s stake/influence on eligibility determinations for private property? Would the County enforce them and how? Are there already measures in place at the local level (e.g. preservation ordinances) that would be appropriate?
Aquatic Resources	Page 2-16	The KRRC has offered to capture 300 listed suckers prior to drawdown in each of the J.C. Boyle and Copco No. 1 reservoirs and transporting them upstream. According to KRRC estimates, this equates to 11 to 35 percent of the listed suckers in J.C. Boyle and 8 to 22 percent of the Copco No. 1 listed suckers.	What KRRC is proposing will result in 557 to 2,457 endangered suckers in Boyle reservoir and 557 to 3,450 endangered suckers in Copco No. 1 reservoir being left to perish in the dam removal process. That is a huge loss to the population and, coupled with the periodic die-offs that occur in Upper Klamath Lake, eliminates a potential recovery population downstream that could support sustaining a population already in peril. For example, Dowling, et al. 2016, determined that the tetraploid genome that exists between Klamath small-scale, shortnose, and Lost River suckers may allow for retention of unaltered copies of important, co-evolved gene complexes and facilitate existence of both of the syngameon (genetic material moving among each of the three species at various times in history) and its constituent species. Reciprocal transfer of the LUX haplotypes to shortnose and small-scale suckers is more frequent than with Lost River suckers but it is still uncommon (4 to 14.8 percent). This argues against eliminating future potential genetic material from the population.
Aquatic Resources	Page 2-22	KRCC proposes large wood placement to promote habitat complexity in either the tributary channels or the tributary floodplains.	There are no plans to anchor these wood structures. This would most likely result in short-term measures that could end up creating log jams that are dangerous for water recreation and will likely end up in the estuary where it provides no benefit to the upriver fish populations.
Aquatic Resources	Page 2-66	Klamath River Flow Requirements	As noted in this section, water quality and aquatic habitat in the Klamath River would continue to be affected by the flow requirements of Reclamation's Klamath Irrigation Project. Since long-term water quality and compliance with TMDLs is uncertain, how can removing the dams be a reasonable action? Without substantial improvements in water quality and aquatic habitat, what is the purpose, then, of dam removal?
Water Quality	Page 3-12	Water Quality Monitoring and Management Plan	Despite efforts expressed to shorten the period of high sediment load in the Klamath during and following drawdown channel aggradation will likely remain an issue for a very long time. Especially considering climate change and how it is changing flow dynamics in many streams located in semi-arid to arid climates like the Klamath (Moyle, et al. 2017). An adaptative management plan should be written with appropriate mitigation measures to offset the possible impacts of channel aggradation to aquatic resources and water quality in the Klamath.
Water Quality	Water Quality Monitoring and Management Plan, Exhibit O	Appendix B, California Water Quality Monitoring Plan, Section 2.4	The impounded sediment analysis is based off of old data collected in 2004 - 2005 and 2009 - 2010. These timeframes do not account for sediment transport and impoundment from the major fires that occurred in northern California and southern Oregon since 2010, including but not limited to: 2014 (Boles Fire and Happy Camp Complex Fire), 2017 (Salmon August Complex Fires and Eclipse Complex Fires), 2018 (Klamathon Fire and Natchez Fire), and 2021 (River Complex 2021 Fires).

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
Water Quality	Water Quality Monitoring and Management Plan, Exhibit O	Appendix B, California Water Quality Monitoring Plan, Section 5.0	Unlike in other sections of the Water Quality Monitoring and Management Plan, Section 5 (which addresses sediment loading) does not include a section for adaptative management. It is recommended that an adaptive management plan for sediment deposition and transport resulting from the proposed project be completed prior to the final EIS. As the proposed project is relying on natural, free flowing hydrology to flush sediments to the Pacific Ocean, and it does not take into consideration increased drought and the effects of climate change on the hydrology, it is necessary to establish an adaptive management plan that addresses removal of long-term excess sediment within the Klamath River that results from project implementation.
Water Quality	Water Quality Monitoring and Management Plan, Exhibit O	Appendix B, California Water Quality Monitoring Plan, Section 5.1	The analysis of the volume of sediment deposited in Copco No. 1 reservoir and Iron Gate reservoir is reliant on old data ("… high resolution bathymetric surveys conducted in 2002 and 2018). This data does not include sediment deposition and loading from increased wildfire activity between 2018 - 2021. With major fires occurring in both southern Oregon and northern California from 2018 - 2021 (such as: Bootleg Fire and River Complex Fires in 2021, Brattain Fire and Slater/Devil Fires in 2020, Lime Fire 2019, and Miles Fire and Klamathon Fire in 2018), increases in the reservoir sediment loading would be anticipated. It is recommended that new bathymetric surveys be conducted prior to the dam removal so that the appropriate exhibits to the EIS be updated with the latest quantifications, as well as a sediment transport adaptive management plan be written.
Water Quality	Water Quality Monitoring and Management Plan, Exhibit O	Appendix B, California Water Quality Monitoring Plan, Section 5.2	The method to quantify sediment exportation is flawed, as the measurements are proposed to be taken after drawdown is complete. During drawdown sediments will be transported outside of each reservoirs' footprint, downstream into the Klamath River and other tributaries; therefore, the quantity of sediment within the reservoirs' footprints will be diminished and an accurate accounting of sediment transport from the project's implementation will not be possible. It is recommended that sediment quantification occurs prior to drawn down activities in order to accurately account for the amount of sediment that will be released into the Klamath river as a result of project implementation.
Water Quality	Water Quality Monitoring and Management Plan, Exhibit O	Appendix B, California Water Quality Monitoring Plan, Section 5.3	As stated in the comments for Sections 5.1 and 5.2, the quantification of sediments in the reservoirs is outdated. Therefore the methodology for quantifying the sediment transport and deposition between Iron Gate and Cottonwood Creek as a result of the project is flawed, by not accounting for the potential increased sediment loading in the reservoirs due to the wildfire activity in southern Oregon and northern California between 2018 - 2021. It is recommended that new bathymetric surveys be conducted prior to the drawdown to accurately account for the sediment transport that will occur from project implementation.
Water Quality	Pages 3-39 - 4-42	Section 3.2.3.2 Effects of Changes in Water Quality on Downstream Flooding	As stated in this section (which draws from the CA State Water Board EIR), KRRC proposes to work with willing landowners to implement a plan to address the significant flood risk following dam removal for the 36 habitable structures (including permanent and temporary residences) located in the altered 100-yr floodplain between Iron Gate Dam and Humbug Creek. However, the potential impacts to environmental resources, or identification of potentially hazardous materials from relocating, elevating, or other methods to relocate, or remove these structures is not identified. The Draft EIS should be revised to identify these impacts.
Water Quality	Section 3.2.3.2 Effects of Changes in Water Quality on Downstream Flooding	Figures 3.3-39, 3.3.-40, 3.3-41	It is unclear whether the proposed Federal Emergency Management Agency (FEMA) 100-year floodplain boundary impact potentially developable lands that would otherwise be outside of the FEMA 100-yr floodplain under existing conditions. These figures show post-dam increases in flood depths that may be within areas with planned developments and may impact private property potential. The impact analysis should include impacts to habitable structures, along with any planned development, private property, or land uses that would allow for future development (or use).
Aquatic Resources	Page 3-31	Future Changes in Climate and Hydrology	With predicted climate changes resulting in irrigation run-off to decrease by 40 percent by 2070, why does it make any sense to eliminate water storage facilities such as the Lower Klamath dams? As mentioned in this NEPA document, Congressman Doug LaMalfa and the Klamath Water Users Association note that the proposed action would eliminate the ability of the lower Klamath Projects to provide supplemental water during extreme drought periods in the Klamath River downstream of Iron Gate Dam.
Aquatic Resources	Page 3-89	Water Temperature	In the list of limitations for the models used to predict water temperature, one of the primary limitations is that all the TMDL Models assume that measures have been taken to meet temperature load allocations. This is a serious flaw in the analysis of effects of the action on water temperature laying the burden of success of implementation of TMDL measures on entities that may not be basin participators when the dams are removed.
Aquatic Resources	Page 3-93	Nutrients, Dissolved Oxygen, and pH	Staff concludes that the proposed action would allow the river to shift to a more natural temperature regime. This is ignoring the fact that, “natural” water temperature conditions in the Klamath River are far from ideal for salmon and not likely to improve with the threat of climate change effects.

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
Aquatic Resources	Page 3-200	Effects of Changes in Water Temperature on Aquatic Resources	Staff relies heavily on temperature models to support better water temperature conditions in the Klamath River post dam removal. There is error in this logic because all the models assume temperature conditions identified in the TMDL process will have been mitigated.
Aquatic Resources	Page 3-201	Effects of Changes in Water Temperature on Aquatic Resources	Error in model assumptions lead Staff to make a broad statement that the proposed action's effects on water temperatures suitable to support salmon and steelhead in the Klamath River Basin would be permanent, significant, and beneficial. The assumption of permanence and beneficial is speculative at best given the unknowns related to climate change.
Aquatic Resources	Page 3-206	Effects of Changes in Suspended Sediment Concentrations on Aquatic Resources	It's disingenuous to assume salmon and steelhead can tolerate SSCs greater than 20,000 mg/l without considering other environmental factors such as temperature and DO. If all three constituents are borderline lethal at the same time (which is highly likely) survival is likely not possible.
Aquatic Resources	Page 3-209	Effects of Changes in Suspended Sediment Concentrations on Aquatic Resources	The Staff, and frankly many of the preceding reports and studies, go to great lengths to accentuate the positive and gloss over the possible negative outcomes. For example: "Under the proposed action, SSCs during this period [fall Chinook outmigration to the ocean in the fall] would only be slightly higher under most of the hydrological conditions that were modeled, except for the worse impacts on fish scenario, in which case SSCs would be high enough to cause major physiological stress".
Aquatic Resources	Page 3-216	Effects of Suspended Sediment on Benthic Macroinvertebrates	As another example, it is stated that the proposed action will likely result in a reduction in abundance of benthic macroinvertebrates (BMI) in the Klamath River downstream of Iron Gate. The Klamath WQ EIR clearly points out that BMI will be wiped out by the proposed action and will likely not recover for several years. This means depletion of a critical food source for rearing salmon and steelhead juveniles over several year classes.
Aquatic Resources	Page 3-218	Effects of Changes in Dissolved Oxygen on Aquatic Resources	The DO model predicts reduction in DO to 0.2 mg/l which is well below lethal conditions for most aquatic organisms (Stillwater Sciences 2011). According to KRRC, DO concentration will "rebound to conditions where salmonids can survive with moderate impairment". This statement is over optimistic and is stated without any spatial or temporal bounds.
Geology and Soils	Erosion and Sediment Control Plan, Exhibit C	Erosion and Sediment Control Plan	Exhibit C is lacking any substantial information regarding BMPs in California to mitigate the effects of erosion and sedimentation resulting from the removal of Copco No 1, Copco No 2, and Iron Gate reservoirs. There is no information in the plan to indicate where the potential disposals sites in California will be located. As Oregon has a separate, state-specific erosion and sediment control plan (Appendix A of Exhibit C), California should have one as well, that outlines the reservoir/state-specific BMPs, stabilization criteria, adaptative management, monitoring specifics, etc. In addition, according to Appendix B of Exhibit C, there was no consultation with any California state agencies regarding the erosion and sediment control plan. Consultation should occur with the appropriate agencies in California, and a California state plan should occur prior to the final EIS. It should be noted that Siskiyou county made similar comments on June 3, 2021 regarding the Supplemental Surrender Application dated February 26, 2021. *"The Erosion and Sediment Control Plan does not contain sufficient detail regarding best management practices (BMPs) to make a determination of adequacy. The plan does not identify areas of anticipated erosion or sediment deposition or specify plans for addressing such concerns. Instead, the plan describes erosion and sediment control measures in general terms that could apply to a variety of land-disturbing activities."*
Geology and Soils	Sediment Deposit Remediation Plan, Exhibit L	Section 3.0 Reporting	While the plan states that annual reporting will occur pertaining to the implementation of the Plan, there is no indication of how long monitoring and reporting will occur. The plan should be updated to include the length of monitoring time, so that a determination can be made if the length of monitoring/reporting is sufficient.
Geology and Soils	Sediment Deposit Remediation Plan, Exhibit L	Appendix A, California Sediment Deposit Remediation Plan, Section 2.0	The plan states that "the Renewal Corporation will only assess sediment deposits on parcels with a current or potential residential or agricultural land use, for which the property owner has notified the Renewal Corporation of a potential sediment deposit that may be associated with reservoir drawdown activities." The plan as written drastically limits the scope of the remediation plan by scope, location, and process, such that it is inadequate to properly address arsenic-contaminated sediment remediation in comparison with federal and state standards. The plan should include an establishment of baseline arsenic along the entire river reach from the Iron Gate Dam to the outfall to the Pacific Ocean prior to drawdown and then conduct a post-drawdown analysis of the entire reach to identify and remediate arsenic-contaminated sediment deposits with the pre- and post-drawdown sampling locations developed in quantity and location to provide a scientifically defensible study of the overall reach. Remediation of specific private landowners' sites, as described in Section 2.0, should then be implemented as a secondary remediation exercise for targeted deposits of arsenic-contaminated sediment deposits.

Resource Area	Section/Exhibit/Page	Referenced Analysis/EIS Text	Comment
Geology and Soils	Sediment Deposit Remediation Plan, Exhibit L	Appendix B, Del Norte Sediment Management Plan, Section 2.0	The plan does not address the deposition of reservoir sediments that have the potential to negatively impact the aquatic habitat of the river below the Iron Gate Dam. In the Del Norte Sediment Monitoring Plan Section 2.3.1, it is stated that "[t]he sediment found within the existing reservoirs at J.C. Boyle, Copco No. 1, and Iron Gate is fine-grained with a high organic material content. The sediment has little sand content and has a high water content and more than 84 percent of the total reservoir sediment volume is silt or finer." Further, in the Del Norte Sediment Monitoring Plan Section 2.3.1, it is stated that "[t]he total maximum volume of sediment expected to be released during the dam removal is a fraction of the total sediment load that currently discharges at the Klamath River mouth, and the Trinity River watershed is and will continue to be the largest sediment source within the Klamath River Basin." However, the Del Norte Sediment Monitoring Plan Section 2.3.1.2 states that "[t]he existing sediment discharging into the Pacific Ocean has a larger grain-size distribution with limited fine-grained silts and clays compared to the expected drawdown period sediment profile to be released to the River below Iron Gate Dam." Therefore, although the sediment loading from the drawdown period is only a fraction of the total sediment load entering the river and, ultimately, the Pacific Ocean, the sediments from the drawdown (silts and clays) will be much finer than those typically processed through the river under current conditions. As such, the sediment transport and deposition processes in the river during and following the drawdown will likely be modified in response to the dramatic change in grain-size distribution. The California Sediment Remediation Plan should address this issue through predictive sediment transport modeling and/or post-drawdown sediment aggradation testing to ensure that these excess fine sediments do not negatively affect the river substrate related to the necessary sediment substrates, riverine hydraulics, and associated habitat to support passage, egg laying, hatching, and rearing of native fish and other aquatic species.

APPENDIX B: DRAFT DEFINITE PLAN FOR THE LOWER KLAMATH PROJECT ("DEFINITE PLAN")

NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

Ashley J. Remillard
D 949.477.7635
aremillard@nossaman.com

VIA FERC ONLINE

November 2, 2018

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Re: Comments re Definite Plan,
Project Nos. 2082-062 (Klamath Project) and 14803-000 (Lower Klamath Project)

Dear Secretary Bose and Chairman McIntyre:

On behalf of Siskiyou County ("County"), we are writing to express our significant concerns regarding the Definite Plan for the Lower Klamath Project ("Definite Plan") that was submitted by the Klamath River Renewal Corporation ("KRRC") to the Federal Energy Regulatory Commission ("FERC" or "Commission") on June 28, 2018. The Definite Plan is intended to support KRRC and PacifiCorp's applications for hydropower license transfer ("Transfer Application") and surrender ("Surrender Application"). Together, these applications propose to transfer, decommission, and remove the four lower Klamath River dams—Iron Gate, Copco I, Copco II, and J.C. Boyle—that comprise the Lower Klamath Project ("Project"). Three of these dams are located within Siskiyou County. The County has, on multiple occasions, expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as socioeconomic impacts on the local community. *See, e.g., PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 28 (Mar. 15, 2018). Unfortunately, the Definite Plan fails to adequately address these concerns.

The Commission's review is currently limited to the pending Transfer Application. *Id.,* ¶¶ at 12, 54. Pursuant to 18 C.F.R. §§ 9.2 and 9.3, a transfer application may be approved upon a showing that the proposed transferee is qualified to hold the license and operate the facility, and that a transfer is in the public interest. Typically, the Commission's inquiry is limited to reviewing the transferee's financial, legal, and technical qualifications to continue to operate the Project. *Id.* Here, however, because the Transfer Application is solely intended to facilitate the ultimate surrender and decommissioning of the Project, the Commission must also consider, based on the Definite Plan, whether KRRC is financially, legally, and technically qualified to effectuate dam removal, including whether it can safely remove Project facilities and adequately restore Project lands. *PacifiCorp*, 162 FERC ¶ 61,236 at ¶¶ 51, 50, 65. Unfortunately, the Definite Plan does not demonstrate that KRRC is qualified to do so. Rather, as described in detail herein, the Definite Plan is fatally flawed, and does not support a conclusion that KRRC will be able to undertake the Project as proposed. Specifically, the Definite Plan is deficient in many respects, including that it (1) proposes an unrealistic schedule, in part because it does not

account for adequate environmental review, (2) underestimates the costs associated with the Project, (3) does not adequately manage risk, (4) misconstrues preemption, and (5) substantively fails to address many critical aspects of the Project, including aquatic resources, terrestrial resources, recreation, and fire management. Accordingly, the County encourages the Commission to deny the Transfer Application because the Definite Plan fails to establish that KRRC is qualified to carry out the proposed Project. The County also reserves the right to provide further comments following any additional submissions by KRRC, following release of any work completed by the Independent Board of Consultants, during any forthcoming formal comment periods, and to present our arguments to the Commission before it makes a determination on the Transfer Application.

1. The Definite Plan's Proposed Schedule is Unrealistic.

Given the proposed drawdown date of January 1, 2021, and given that the end of 2018 is quickly approaching, the Definite Plan proposes a schedule for the Project that is highly unrealistic, particularly from an environmental permitting standpoint. The overly aggressive schedule appears to be driven by KRRC's desire to make the cost of the Project (discussed below) fit within KRRC's budget. Put another way, if KRRC is forced to push out its timeline to accommodate a realistic Project schedule, the cost of the Project will increase to the point where KRRC lacks sufficient funding. This is clear from the Definite Plan, and is one of its most significant flaws.

Examples of the various permitting processes that are not sufficiently underway so as to allow for the proposed timeline include the following:

- **Endangered Species Act ("ESA").** FERC has initiated informal consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service under section 7 of the federal Endangered Species Act ("ESA"), but has not initiated formal consultation. Formal consultation and preparation of a biological opinion takes several months or more. Furthermore, no activity that constitutes an irretrievable commitment of resources can commence prior to completing the consultation process. 16 U.S.C. § 1536(d); 50 C.F.R. § 402.09. If formal consultation is not initiated by early 2019 (and there is no indication in the Definite Plan that this will occur), the ESA process will likely delay the proposed timeline.

- **National Environmental Policy Act ("NEPA").** Further NEPA review, including preparation of a new or supplemental environmental impact statement, is required prior to the Commission making a decision on the Transfer Application. Specifically, the Commission is obligated to commence the NEPA process "at the earliest possible time." 40 C.F.R. § 1501.2(d)(3); *see also* 40 C.F.R. § 1502.5; *Envtl. Def. Fund, Inc. v. Andrus*, 596 F.2d 848, 853 (9th Cir. 1979) ("This court has also noted that delay in preparing an EIS may make all parties less flexible. After major investment of both time and money, it is likely that more environmental harm will be tolerated."). Failing to commence the NEPA review process until the Commission considers the Surrender Application would constitute impermissible project "segmentation." *See Myersville Citizens for a Rural Cmty., Inc. v. F.E.R.C.*, 783 F.3d 1301, 1326 (D.C. Cir. 2015); 40 C.F.R. § 1508.25(a)(1)-(3); *see also* 40 C.F.R. § 1502.4. Furthermore, categorical exclusions to

NEPA review are not applicable, given the "extraordinary circumstances" of this proceeding, as acknowledged by FERC. *See* 40 C.F.R. § 1508.4; 18 C.F.R. §§ 380.4(b)(2)(ii), (iii), (iv), (vi), (vii); *see also PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 51. Accordingly, because further NEPA review must occur, and FERC has not yet commenced this process, additional environmental review will likely result in a delay to the Project timeline.

- **Section 404 of the Clean Water Act ("CWA").** The U.S. Army Corps of Engineers cannot issue a section 404 permit for the Project until after the ESA and NEPA processes are completed. In addition, the Corps must complete its own alternatives analysis under section 404(b)(1). Given the issues identified above, completion of the section 404 permitting process will likely delay the Project timeline.

- **Procurement Process.** Under the proposed project delivery method, KRRC will select the design-builder prior to securing a guaranteed maximum price ("GMP"). Appendix A at 25-28. The designated design-builder will then spend six to nine months studying the Project area before the GMP is determined. *Id.* It is KRRC's position that the GMP will be determined prior to KRRC's acceptance of the Project license. *Id.* The timing of this process is entirely unrealistic. KRRC states that it plans to have the design phase begin in the first quarter of 2019. *Id.* This would mean that the entire procurement process, including a request for qualifications, request for proposals, and contract negotiation, would be completed in roughly four to six months. This is highly unlikely, as most procurements of this magnitude take at least twice that long. This also ignores the permitting processes that are likely going to alter the ultimate scope of the Project, including with respect to avoidance and minimization measures. This is yet another example of how unrealistic the timeline for the Project is, and how it will almost certainly result in cost overruns.

These examples are only a few of the regulatory, permitting, and compliance issues that are likely to result in a delay to the proposed Project timeline. Rather than acknowledge the complexities that are involved in obtaining the required approvals, it appears that KRRC is trying to downplay these complexities, while also creating a false sense of urgency to put pressure on FERC to make a decision regarding the pending applications as quickly as possible. The County encourages the Commission to carefully review all Project components, including costs (discussed below), prior to making any decision on the pending applications. In doing so, it will become apparent that the proposed schedule is unattainable. Accordingly, the County requests that the Commission deny the Transfer Application.

2. There is Inadequate Funding to Carry Out the Project.

KRRC's funding sources are currently finite, with a cap of approximately $450 million. Definite Plan at 299 n. 26. The current estimated cost of the Project (full dam removal) is $397,700,000 (80% probability). *Id.* at 304. Using a Monte Carlo analysis, the Most Probable Low estimated cost is $346,500,000 (10% probability) and the Most Probable High estimated cost is $507,100,000 (90% probability). *Id.* The Most Probable High estimated cost – which KRRC claims would cover the cost of the Project in 90% of the scenarios – exceeds KRRC's

current funding sources by $57 million. This demonstrates that KRRC simply does not have the required funding for the Project.

In addition, other evidence demonstrates that current funding for the Project is inadequate. In October 2012, the "Klamath Dam Removal Overview: Report for the Secretary of the Interior" reported the costs of full dam removal with a 98 percent probability range of $238,000,000 to $493,100,000, and most probable cost of $291,600,000. *See* http://www.narlo.org/klamathdamremoval%20USGS.pdf. In the past six years, the estimated most probable cost has increased by over $100 million ($291,600,000 compared to $397,700,000). If the Project is delayed, for example, by three to six years (which will likely occur, for the reasons set forth above), the cost of the Project can be expected to increase by roughly $50 to $100 million or more, which would exceed KRRC's available funding by a significant margin. Notably, KRRC does not have adequate funding to accommodate ***any*** delay; for this reason alone, its Transfer Application should be denied.

Furthermore, as described below with respect to risk management, it appears that KRRC has not appropriately attributed costs to various risks. As such, it is likely that cost overruns will occur. Indeed, it is well documented that, with respect to large scale infrastructure projects, cost overruns are the rule rather than the exception. In recent years, large projects across asset classes typically experience cost overruns of 80 percent above original estimates. *See* R. Agarwal et al., *Imagining construction's digital future*, June 2016, *available at*: https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/imagining-constructions-digital-future. Likewise, with respect to dam projects specifically, recent studies have found that roughly 75% of projects experience cost overruns, with the average increase as high as 96% of the original cost estimate. *See* S. Lewis, *Study finds big cost overruns on global dam megaprojects*, March 2014, *available at*: https://www.enr.com/articles/2394-study-finds-big-cost-overruns-on-global-dam-megaprojects?v=preview. Thus, given that costs are likely underestimated, and that the timeline is likely overly aggressive (due to, among other things, NEPA processes, ESA permitting approvals, etc.), KRRC's current funding for the Project is inadequate.

The Commission has determined it "require[s] a detailed explanation of how [KRRC] would provide or obtain the funds necessary to decommission and remove the Lower Klamath Project in the event that funds equal to or greater than the maximum cost estimate for the full removal alternative are required." *PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 65. Yet, the Definite Plan does not adequately address potential delays or cost overruns. The Design Contingency is estimated at 10%, and the Construction Contingency is estimated at 20%. Definite Plan at 302. Given that large scale projects typically experience cost overruns of approximately 80-90%, KRRC's proposal is insufficient. Moreover, the only mechanism for addressing cost overruns beyond those contemplated by the Design and Construction Contingency is a meet and confer process through which additional funding sources will be identified and pursued. *E.g.,* Definite Plan Cover Letter, Ex. B (Funding Agreement) at 19. This wholly fails to satisfy the Commission's requirement that KRRC explain how it would obtain additional funding, if necessary.

Finally, the Definite Plan fails to provide adequate funds to address many of the concerns that the County has repeatedly voiced regarding the Project. These concerns include: (1) inadequate funding to compensate the County for the lost revenue stream resulting from a

decrease in property tax revenue; (2) inadequate funding to compensate for Project impacts, including land subsidence, increase of dust in the Project area, and road and bridge improvements; (3) inadequate funding for long-term power replacement stemming from the loss of power generated by the dams; and (4) inadequate funding to compensate landowners for the loss of property/value. KRRC's failure to secure (or even address) funding for these concerns further demonstrates that it has inadequate funding for the Project.

In sum, because KRRC has inadequate funds, including an inadequate contingency plan, to address Project delays or cost overruns, KRRC lacks sufficient funding to carry out the Project. For this reason, the Commission should deny the Transfer Application.

3. The Definite Plan Does Not Adequately Manage Risk.

The Definite Plan's proposed risk management plan is deficient in many respects, including because (1) many components of the plan are uncertain or unknown and (2) many risks are not appropriately characterized in the risk register. For example, the County has identified the following concerns with the proposed risk management plan:

- The Project Insurance Program, which will be an owner-controlled insurance program ("OCIP"), will not be in place until removal work is ready to commence. As such, the precise terms and scope of the insurance program are unknown. This is problematic, as there are no policies and/or precise coverage terms available to review. At a minimum, the Commission should require KRRC to name the County as an additionally insured party under the forthcoming insurance program.

- The Project itself does not appear to have been properly vetted by the industry. The risk management plan states that "risk workshops" will take place at various points throughout the permitting and compliance process, including after the Board of Consultants reviews the Definite Plan. This suggests that, at this time, the industry has not yet reviewed and/or provided input on the proposed Project cost and scope. This seems to deviate from standard industry practice, which would typically involve holding an industry forum early in the process to make sure that a Project proposal is viable. Here, it is unclear whether such industry outreach has occurred. This means that the Project likely includes risks that the industry will find unacceptable. Furthermore, this suggests that the timeline and costs proposed by KRRC are understated and unrealistic.

- The risk register does not appropriately characterize the risks associated with the Project, and does not provide sufficient detail regarding the costs associated with each risk. Of the 103 risks identified, there are zero that are considered to have a 60% or higher probability of occurring. There are only three that have a probability of 40-59% probability of occurring. This seems to inaccurately characterize the likelihood that various risks will occur. For example, Risk No. 35, "Release of hazardous material (other than from construction equipment) to river during construction," is considered "very unlikely" to occur. Given the uncertainties associated with the sediment testing and modeling that has been performed to date, it is apparent that KRRC has downplayed the likelihood of this risk, among others, to a significant degree.

For additional deficiencies in the risk management plan, please see the Technical Memorandum attached hereto as Exhibit 1.

4. The Definite Plan Misconstrues Preemption.

The Definite Plan states that KRRC does not intend to comply with many state and local laws, including California Fish and Game Code sections 1602 and 2081, because they are preempted by FERC's authority under the Federal Power Act. Definite Plan at 38-39. This approach is unacceptable for a number of reasons. To begin with, KRRC as the applicant is not in a position to invoke preemption. The decision whether to do so lies with FERC. And FERC has made it clear that the Project should comply with all practicable state and local legal requirements.

In addition, because the State of California is a party to the Amended Klamath Hydroelectric Settlement Agreement ("KHSA"), KRRC is carrying out that agreement, KRRC officers and board members are appointed by the Governor, and KRRC is reliant on state funding to carry out the proposed action, KRRC is functioning as an arm of the state and engaging in self-governance. As such, its activities are not subject to preemption. *See, e.g., Friends of the Eel River v. N. Coast R.R. Auth.,* 399 P.3d 37 (Cal. 2017).

Further, it is well established that the Federal Power Act does not preempt state and local laws concerning proprietary water rights. Thus, because the County has used reservoir water for firefighting, recreation, and other municipal purposes, dam removal in effect involves a transfer of those proprietary water rights, which precludes preemption. *See, e.g., Cty. of Amador v. El Dorado Cty. Water Agency*, 76 Cal. App. 4th 931, 958 (Cal. 1999).

Finally, while the Federal Power Act occupies the field of hydropower licensing (except to the extent that proprietary water rights are at issue), nothing suggests that FERC's preemptive authority extends to hydropower facility decommissioning. Thus, because decommissioning has a different purpose than licensing, state and local permitting requirements are not preempted by federal law.

In sum, the determination regarding whether the Federal Power Act preempts the application of state law to the proposed action lies with FERC, not KRRC. And FERC has already clarified that KRRC must comply with state and local laws to the extent practicable. Therefore, the Definite Plan should be revised accordingly. Furthermore, the laws that KRRC seeks to circumvent protect, among other things, the critically endangered Lost River sucker and shortnose sucker. The Commission has, in past dam removal cases, and should in this case, require KRRC to obtain all local permits. *See Arizona Public Service Co.*, 109 FERC ¶ 61,036 (2004); *Wisconsin Electric Power Co.*, 94 FERC ¶ 61,038 (2001).

5. The Definite Plan Fails to Adequately Address Critical Aspects of the Project.

There are numerous other Project components that are inadequately addressed in the Definite Plan. Several of these are discussed below.

A. Aquatic Resources

The Definite Plan builds on the population data presented in the 2012 environmental impact statement/report ("EIS/R") relating to spring and fall run Chinook salmon, Coho salmon, and steelhead. The discussion purports to set forth the most recent 10 years of available population abundance metrics. The County's concerns include the following:

- Appendix I addresses dam removal benefits and effects on aquatic resources including fish, but it does not reference or describe the findings included in the final reports from expert panels on Chinook salmon, Coho salmon, steelhead, and other resident fish species. In particular, it does not acknowledge the substantial uncertainty associated with benefits of dam removal for salmonids described in the expert reports. By way of example, the report of the expert panel on Chinook salmon noted that the proposed action is likely to substantially increase the range and abundance of redband, which may increase predation of Chinook salmon, thereby reducing or canceling benefits of the proposed action for Chinook salmon. See Klamath River Expert Panel, Chinook Salmon, Addendum to Final Report at 18. This and other points raised are ignored in the Definite Plan.

- With respect to Lost River and shortnose suckers, KRRC proposes to translocate a minimum of 600 and a maximum of 3,000 fish to Tule Lake. Any remaining sucker populations within the reservoirs will be entirely lost due to dam removal. Given the imperiled status of these species, this proposal is inadequate. Furthermore, the KRRC claims that the lower Klamath sucker populations are not viable or self-supporting. This does not seem consistent with the apparent potential that there are in excess of 3,000 suckers in the lower Klamath reservoirs. There is a paucity of empirical research to confirm (or falsify) the claim that the lower Klamath populations are not viable. Furthermore, the County has been, and continues to be, extremely concerned with the State's passage of AB 2640, which permits the California Department of Fish and Wildlife to authorize the take of suckers resulting from impacts associated with the Project. For further information regarding the County's concerns, please see Exhibit 2, attached hereto.

- The 2012 EIS/R for the Project included a number of measures intended to protect aquatic resources. In the Definite Plan, KRRC indicates it intends to alter some of those measures and abandon others. For example, in the 2012 EIS/R, the Department of the Interior had proposed fall pulse flows to benefit Chinook and Coho salmon, but KRRC does not intend to provide such fall pulse flows. Appendix I at 93. Likewise, the 2012 EIS/R included a telemetry study, sucker salvage, and release into Upper Klamath Lake to benefit the Lost River and shortnose suckers. Appendix I at 122. But KRRC does not intend to implement these measures. Therefore, KRRC cannot rely on the 2012 EIS/R to establish compliance with CEQA and NEPA.

- With respect to spring run Chinook, the Definite Plan appears to concede that the Project will not, in fact, help spring run populations. Specifically, the only remaining spring run populations occur in the Salmon and Trinity rivers. Thus, KRRC acknowledges that "it is likely that some intervention [beyond the Project] will be

necessary to re-establish spring Chinook salmon populations in the Upper Klamath Basin." Definite Plan at 226. This is noteworthy because spring run Chinook appear to be the most imperiled of the anadromous species that will be impacted by the Project, and KRRC effectively concedes that the Project alone will not benefit these populations.

For additional deficiencies in the proposed aquatic resources measures, please see the Technical Memorandum attached hereto as Exhibit 1.

B. Terrestrial Resources

KRRC's proposed measures with respect to terrestrial resources are inadequate. Specifically, the County is concerned that KRRC does not intend to conduct field surveys to determine to what extent listed species will be impacted by the Project. KRRC should be required to conduct such surveys, as this is standard industry practice. In addition, the Definite Plan contains incorrect information regarding threatened and endangered species (presumably because it is based on the 2012 EIS/R, which is outdated). For example, the Humboldt Marten was listed in August 2018, yet the Definite Plan does not list it as a protected species, and does not include any protections for it. This is improper.

For additional details regarding these concerns and others relating to terrestrial resources, please see the Technical Memorandum attached hereto as Exhibit 1.

C. Road Improvements

While the Definite Plan proposes various improvements to address road impacts resulting from the Project, the proposed improvements are inadequate. For example, the County's Public Works Department has expressed significant concern over the use of Copco Road and other access roads before, during, and after construction. Copco Road cannot withstand the transport of the heavy equipment that is needed for dam removal activities. KRRC should be required to perform a comprehensive assessment to determine what improvements will be needed prior to construction, and what repairs will be needed during/after construction. In addition, Copco Road will not be able to be used for heavy equipment access during the winter months, which will need to be (and currently is not) incorporated into KRRC's timeline.

For additional details regarding the County's concerns with respect to proposed road improvements, please see the Technical Memorandum attached hereto as Exhibit 1.

D. Yreka Water Supply

KRRC has proposed three options to replace the City of Yreka's water supply pipeline. The County's concerns with KRRC's proposal are twofold. First, as KRRC acknowledges, the current pipeline is buried in the reservoir bed, and therefore concealed from view. Yet two of the three proposed replacement options involve a new aerial pipeline. As such, at least two of the proposed options are aesthetically inferior to current conditions. KRRC should be required to propose other alternatives that involve a pipeline that is concealed from view. Second, the County is concerned that KRRC ultimately gets to decide which replacement option to select. While KRRC states that it will consult with the City of Yreka, there remains the possibility that

KRRC, due to cost considerations, selects an option that is not acceptable to the City of Yreka. KRRC should be required to obtain concurrence from the City of Yreka before proceeding with a water supply pipeline replacement plan.

E. Recreation Facilities Removal and Draft Plan

Of the 12 recreation facilities currently owned by PacifiCorp within the Project area, KRRC proposes to remove at least nine of them in their entirety. The ultimate disposition of the other facilities is "uncertain." The County's concerns regarding KRRC's proposed recreation plan include:

- KRRC emphasizes that the Project involves the transfer of approximately 8,000 acres of real property located in Klamath County and Siskiyou County to the States of Oregon and California, respectively. This fact, however, does not control the ultimate disposition of that land. While the Amended KHSA states that the acreage is "intended" to be used for "public interest purposes," such as fish and wildlife habitat restoration and enhancement, public education, and public recreational access, there is no guarantee that the acreage will be used in this manner. For various reasons, including that the States will bear the cost of how the land is used, managed, and maintained, it is possible that the land will not be used as "intended" in the Amended KHSA.

- The draft recreation plan is fraught with uncertainty. KRRC has not identified future owners or operators for recreational facilities that could be retained, including Jenny Creek day use area/campground and Fall Creek day use area. *See* Definite Plan at 261-268. Furthermore, while KRRC has engaged in stakeholder outreach regarding recreational proposals, it does not appear to have made much progress selecting and/or incorporating the proposals into the Project. KRRC has identified various screening criteria that it will use to evaluate the proposals, including the criterion that the proposal be "implementable through available funding." Thus, due to cost constraints, KRRC could opt to not include ***any*** of the recreational proposals within the Project scope. It currently appears that KRRC has only committed to providing one whitewater boating area and one access area for fishing. None of the other proposals are currently included within the Project scope, and nothing requires that they be included in the future.

For additional details regarding the County's concerns with respect to the proposed recreation plan, please see the Technical Memorandum attached hereto as Exhibit 1.

F. Downstream Flood Control Improvements

A total of 34 "habitable structures" are located within the preliminary 100-year floodplain for current conditions between Iron Gate Dam and Humbug Creek. These structures will be subject to an increased risk of flooding following dam removal when compared to existing flood elevations. KRRC states that it will "work with the owners of these structures to move or elevate legally established structures, ***where feasible***." Definite Plan at 270 (emphasis added). The County's concerns regarding this section are twofold. First, KRRC is not required to remedy flood control issues if it is not "feasible." It is unclear how such a feasibility determination will be reached, and few details are offered regarding how moving or elevating the structures would occur. Second, KRRC downplays the on-the-ground impacts to the people who reside in the

homes within the newly created floodplain, opting to dehumanize them and characterize their residences as "habitable structures." Among other things, an increased risk of flooding could impact property values and strain the County's flood control resources. None of these issues are discussed or addressed.

G. Fish Hatchery Plan

KRRC proposes to upgrade and fund the operations of the Iron Gate fish hatchery and Fall Creek fish hatchery for a period of eight years following dam decommissioning. Notably, the hatcheries will cease operations and be decommissioned after eight years. This approach is problematic. The fisheries have supplemented the Coho, Chinook and steelhead populations for over half a century. The impact of shutting down the fisheries does not appear to be well understood and is not discussed or addressed in the Definite Plan.

For additional details regarding the County's concerns with respect to the proposed fish hatchery plan, please see the Technical Memorandum attached hereto as Exhibit 1.

H. Cultural Resources Plan

The Definite Plan states that the Klamath River Hydroelectric Project District ("District") is eligible to be listed on the National Registry of Historic Places ("NRHP") for its association with the industrial and economic development of southern Oregon and northern California, but that the California and Oregon State Historic Preservation Offices ("SHPOs") have not concurred with this eligibility recommendation. Appendix L at 16. Concurrence from the SHPOs, and the ultimate status of the District, should be ascertained before dam removal activities commence. In addition, pursuant to section 106 of the National Historic Preservation Act ("NHPA"), KRRC must consult with the SHPOs, tribal historic preservation offices, and other interested parties, to identify historic properties (as defined under section 301 of the NHPA), assess whether and how these properties may be affected by the Project, and formulate a plan to avoid, mitigate, or resolve any adverse effects to cultural and historic sites and resources.

The Definite Plan further states that the NRHP evaluation of traditional cultural properties, sensitive cultural resources, and traditional cultural riverscape was not formalized through consultation with the California and Oregon SHPOs and associated federal agencies, and remains a task for implementation under the Project. Appendix L at 16. This task should be completed well before dam removal activities commence.

For additional details regarding the County's concerns with respect to the proposed cultural resources plan, please see the Technical Memorandum attached hereto as Exhibit 1.

I. Water Quality Monitoring Plan

Water quality monitoring is currently occurring through the KHSA's Interim Measure 15, which requires PacifiCorp to perform monitoring from Upper Klamath Lake to the Klamath River estuary at the Pacific Ocean. Water quality monitoring will continue (although will be modified slightly) until the States of Oregon and California are satisfied that certain water quality standards have been met or three years post-construction, whichever occurs first. The County's concerns with the proposed approach are twofold. First, it is problematic that water quality

monitoring will occur at a maximum for three years post-construction. If further water quality monitoring is needed, there is no mechanism for such monitoring to take place. Second, KRRC cites to various studies to support its conclusion that reservoir sediments in each reservoir are suitable for unconfined, aquatic disposal and that contamination risks from reservoir sediment are unlikely and/or are either lower than with the dams still in place and/or lower than background levels. KRRC ignores, however, that the studies that support this conclusion were performed with inadequate models, and that deeper sediment sampling is needed to better understand the nature of the reservoir sediments.

For additional details regarding the County's concerns with respect to the proposed water quality monitoring plan, please see the Technical Memorandum attached hereto as Exhibit 1, as well as the letters attached hereto as Exhibits 3 and 4, which the County submitted to the California State Water Resources Control Board and the Oregon Department of Environmental Quality in connection with the draft water quality certifications for the Project.

J. Fire Management Plan

In July 2018, the County suffered the Klamathon Fire, which burned over 38,000 acres and destroyed over 82 structures within the County's borders. The Klamathon Fire demonstrates the importance of the local reservoirs not only for firefighting, but also to contain wildfires, preventing the fires from devastating even more of the County's lands. Currently, the proposed fire management plan is deficient in many respects, including because it fails to include a replacement source of water that can be used for aircraft firefighting activities.

For additional details regarding the County's concerns with respect to the proposed fire management plan, please see the Technical Memorandum attached hereto as Exhibit 1.

K. Traffic Management Plan

The current traffic management plan is inadequate to protect the region's citizens, including County residents, from significant disruption during Project implementation. The Definite Plan should be revised to identify, with specificity, best practices with respect to signage, traffic management systems, and dust control.

For additional details regarding the County's concerns with respect to the proposed traffic management plan, please see the Technical Memorandum attached hereto as Exhibit 1.

L. Groundwater Well Management Plan

The Definite Plan's approach to groundwater wells is of particular concern to County citizens that reside near the Copco dams. As drafted, the proposed groundwater well management plan falls short of providing these residents with adequate protections for their groundwater supplies. Among other things, the County requests that: (1) field study results be augmented with groundwater modeling to predict the reservoir drawdown effects on the aquifers within the target area, (2) the impact of the reservoir drawdown on groundwater-fed streams within the target be addressed, as these streams support irrigation and presumably an aquatic ecosystem, and (3) the numerous other springs (besides the spring mentioned near Copco Lake) be catalogued and monitored.

6. CONCLUSION

For the foregoing reasons, the County encourages the Commission to deny PacifiCorp and KRRC's Transfer Application. Please do not hesitate to contact us with questions.

Sincerely,

Ashley J. Remillard
Nossaman LLP

AJR:

SWCA
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

TECHNICAL MEMORANDUM

November 2, 2018

Natalie Reed
County of Siskiyou
P.O. Box 659
Yreka, CA 96097

Re: Review and Comment on the Definite Plan for the Lower Klamath Project

---

DEFINITE PLAN

The Definite Plan provides the general overview of the proposed Project (Project). SWCA's specific comments on the Definite Plan are provided below and organized by appendix, chapter, and section.

APPENDIX A: RISK MANAGEMENT PLAN

The Risk Management Plan provides an analysis of the foreseeable risks associated with the Project and describes risk factors, insurance and bonding, strategy for procurement and contracting, and includes a Design and Construction Risk Register which describes perceived risk, the probability of occurrence, and the Overall Risk Rating.

Attachment A. Design and Construction Risk Register. Based on the dam removal experience of SWCA staff, the following risk evaluations appear flawed with respect to the probability of risk and the overall risk rating.

- **Risk 32 - Copco Lake reservoir rim or local slope failure along access roads**. The probability of risk is assessed as low (10–19 percent [%]). However, the impact and probability of slope failure along the access roads should be higher, thus increasing risk weight. Also, the overall rating should be higher than "medium" based on observations of the Condit Dam Decommissioning and Removal Project (PacifiCorp 2012).
- **Risk 41 - Unanticipated non-burial related cultural resources discovered during drawdown**. The risk is assessed as low. However, this risk should be assessed as high, because the area along the historic river channel is culturally rich. (PacifiCorp 2004).
- **Risk 43 - Unanticipated human burial sites discovered during drawdown.** The probability of only 10–19% risk of uncovering human burial sites is not accurate, given the known numbers of burial sites. There is also a substantial chance that there are unknown burial sites that could be discovered during drawdown. (PacifiCorp 2004), For example, an unknown burial site was uncovered at the Tulana Farm Restoration Project at the mouth of the Williamson River in 1998 after a period of high wind and heavy wave action exposed a burial site on the shore of Upper Klamath Lake (F. Shrier, pers. comm. 2018).
- **Risk 45 - Reservoir drawdown impacts water quality more severely than anticipated causing project shutdown.** The assessed overall risk rating of "medium" is not accurate, given the 1.2–2.9 metric tons of sediment present in the reservoirs. The Condit Dam Removal Project (PacifiCorp 2012) and the Marmot Dam

Removal Project (Major, et al. 2012) released a fraction of the projected sediment loads on the Klamath River, but the water quality impacts persisted for months after the initial breach.

- **Risk 46 - Reservoir drawdown results in greater than anticipated erosion at bridges or along channel creating passage barriers.** Based on observations at the Condit Dam Decommissioning and Removal Project, the assessed overall risk of "low" is not accurate for bridges or channel erosion, since both occurred after reservoir drawdown for the Condit Dam. (PacifiCorp 2012). Channel erosion continued along the White Salmon River for more than a year after drawdown, causing the need to stabilize the slopes adjacent to the Northwestern Lake Bridge supports (PacifiCorp 2012). As noted in Appendix K (Road and Bridge Structure Data and Long-Term Improvements) some bridges may require replacement after reservoir drawdown. This indicates that the risk rating should be higher.

- **Risk 48 - Reservoir dewatering and subsequent operations have greater than anticipated effect on groundwater wells**. A probability of 10-19% and an overall rating of "low" is unrealistic and shows an unwillingness to appreciate the true risk.

- **Risk 69 - Limited recovery of fish species of concern.** A risk probability of "unlikely" and an overall rating of "low" is not adequate given the environmental issues identified in Appendix I (Aquatic Resources) and Appendix M (Water Quality Management Plan). The severity of potential impacts to all aquatic species and the overall risk rating should be "high."

APPENDIX D: DAM STABILITY ANALYSES

Appendix D is a technical memorandum containing a dam stability analysis for the J.C. Boyle Dam and Iron Gate Dam prepared by AECOM staff in June 2018. Based on the technical memorandum, the Klamath River Renewal Corporation (KRRC) developed a drawdown plan, which is set forth in Chapter 4 of the Definite Plan. AECOM's recommendations are set forth below, as well as SWCA's concerns regarding the recommendations and the ultimate drawdown plan.

AECOM recommendations

1. Based on the analyses, reservoir drawdown could be as high as 10 feet per day. However, AECOM recommends that reservoir drawdown be 5 feet per day, except as noted for J.C. Boyle Dam below. Appendix D at 8.

2. It is our understanding that the demolition of J.C. Boyle Dam includes removal of concrete stoplogs within two diversion culverts. The removal of the concrete stoplogs (likely by blasting) will result in drawdown of approximately 10 feet for the first culvert and 8 feet for the second culvert within less than 24 hours. Although we conclude that the J.C. Boyle Dam will perform satisfactorily under these rapid drawdown conditions, AECOM recommends a hold period of one week be implemented between removal of the stoplogs from the first culvert until the stoplogs from the second culvert are removed to allow for pore pressure dissipation. *Id.*

3. The analysis results indicate that no slope instability would result during reservoir drawdown. However, there is a potential for shallow slumping along the upstream embankment slopes due to the potential strength loss of surficial materials during the drawdown. Therefore, AECOM recommends frequent visual inspection during the reservoir drawdown process. If any shallow slumping is observed, riprap can be placed to provide additional resistance. *Id.*

4. AECOM recommends that instrumentation be installed to monitor the upstream slopes during reservoir drawdown for dam removal. The types of recommended instrumentation include survey monuments, inclinometers, and piezometers. Daily readings are recommended to closely monitor if there are any unanticipated slope movements or pore pressure accumulation. AECOM recommends that the instrumentation be installed the year prior to reservoir drawdown. The piezometers would be monitored during reservoir drawdown to confirm that the transient phreatic surface within the upstream shell of the dam falls as the reservoir elevation drops. *Id.*

Concerns regarding drawdown plan

- While the Klamath River Renewal Corporation (KRRC) has adopted recommendation #2, above, the values given for the amount of water leaving J.C. Boyle Reservoir are provided in cubic feet per second. Definite Plan at 106. This should be revised to reflect the cubic feet per day standard that is used in other parts of the analysis.

- As a precautionary measure, dump trucks loaded with riprap should be onsite at the Iron Gate and J.C. Boyle Dams in case shallow slumping is observed.

APPENDIX E: RESERVOIR RIM STABILITY ANALYSES

Chapter 2. J.C. Boyle Reservoir. For J.C. Boyle Dam, KRRC concluded that "deep-seated large landslides are less likely." Appendix E at 16. Therefore, stability analyses for the rim of J.C. Boyle Reservoir are deemed not required to support the preliminary design. *Id.* This is improper; such analyses should be required.

Chapter 3. Copco No. 1 Reservoir. During rapid drawdown, the stabilizing effect of the Copco Dam Reservoir on the slope is absent but the pore water pressures within the slope remains high in materials with low permeability. *Id.* at 34. The high pore pressures in combination with the lack of the stabilizing effect from the reservoir can lead to significantly reduced slope stability. *Id.* However, in Table 3.6, the stability analyses for 17 of the 24 segments are listed as "In Progress." A complete reservoir rim stability analysis is essential to evaluate environmental impacts of the project, especially at Copco Reservoir, where there is an existing population and infrastructure. This analysis should be performed.

3.4.5 Future Analysis and Investigations.

- Referring to Table 3.6, the report provides:

> While the analyses discussed above are still preliminary, the results indicate that certain areas or segments may have the potential for slope instability as a result of the project activities. Some of these segments are below the current reservoir water surface, and slope failures within these segments would not impact existing roads or private property/structures. KRRC does not propose additional field investigations for these segments.

Id. at 38. If there are known areas of potential slope instability, KRRC should conduct further analysis to ensure the safety of residents and infrastructure. The conclusion presented is counterintuitive in suggesting that despite the potential for slope instability, there will be no impact.

- KRRC also concludes that:

> Some larger deeper slides are also possible within Copco No. 2 reservoir where submerged higher bluffs exist along the original Klamath River channel. These shallow slides and potential slides along the river channel pose no threat to roads or private property; however, KRRC will monitor these areas during and post-drawdown to assess any potential impact to existing cultural resources.

Id. This paragraph mentions "larger deeper slides" but then refers to "shallow slides." Again, the conclusion that roads or property will not be affected is not supported by the facts presented. KRRC should explain why the larger slides and shallow slides pose no threat to roads or property.

- KRRC acknowledges that about 3,700 feet of slopes along Copco Road, and about 2,800 feet of slopes adjacent to personal property, may be at risk due to slope failures, including up to 8 parcels with existing habitable structures. *Id.* at 38-39. KRRC states it will "consider" the following actions to offset potential impacts:

  1. For segments along Copco Road:

     a) Re-align of road segment away from rim slope.

     b) Engineer structural slope improvements (e.g. drilled shafts or other structural elements that could be installed to resist slope movement).

  2. For segments adjacent to property or structure:

     a) Move structure or purchase property.

     b) Engineer structural slope improvements (e.g. drilled shafts or other structural elements that could be installed to resist slope movement).

  However, due to the severity of the potential impacts to homeowners, KRRC should commit to more than just "considering" these actions. KRRC should meet with the Siskiyou County Board and the affected Siskiyou County (County) residents to discuss potential compensation and mitigation for losses.

- The evaluation concludes that "based on the low permeability of the diatomite, changing the drawdown rate would have minimal impact on the rapid drawdown stability analysis results. Therefore, KRRC is not proposing to limit the drawdown rate for drawdown of Copco No. 1 Reservoir." *Id.* at 39. However, this planned drawdown rate for the Copco No. 1 reservoir is inconsistent with the recommendation in the Appendix D, Dam Stability Assessment, which clearly states that the drawdown procedure for Iron Gate and J.C. Boyle dams should proceed cautiously and, at the very least, not exceed 5 feet per day. Appendix D at 8. An analysis supporting the differing drawdown rates across all four reservoirs should be provided.

APPENDIX F: RESERVOIR DRAWDOWN ANALYSIS

Chapter 2. J.C. Boyle Reservoir. KRRC states that the suspended sediment concentrations under the new proposed drawdown procedure are not expected to differ from those previously estimated in the U.S. Bureau of Reclamation's 2012 Detailed Plan (about 0–8 mg/l). This assumption is likely inaccurate, given that observations of the Condit Dam Decommissioning and Removal Project (PacifiCorp Energy 2012) indicate suspended sediment concentrations exceeding 10,000 mg/l. Appendix F at 17. Page

Chapter 3. Copco 1 Reservoir. KRRC states that the sediment concentrations under the new proposed drawdown procedure are not expected to differ from those previously estimated in the U.S. Bureau of Reclamation's 2012 Detailed Plan (about 0–200 mg/l). *Id.* at 72. However, it is more likely that suspended sediment concentrations will

exceed the 10,000 mg/l concentrations observed during the Condit Dam Removal (PacifiCorp 2012) since over 100 years of sediment has accumulated in the bottom of the reservoir. For example, the Marmot Dam Removal Project in Oregon, a much smaller project than the proposed Project, also produced suspended sediment concentrations exceeding 10,000 mg/l (Major et al. 2012).

Chapter 4. Iron Gate Reservior. KRRC states that the sediment concentrations under the new proposed drawdown procedure are not expected to differ from those previously estimated in the U.S. Bureau of Reclamation's 2012 Detailed Plan (about 0–1,000 mg/l). Appendix F at 125. However, sediment concentrations are likely to exceed 10,000 mg/l (PacifiCorp Energy 2012; Major et al. 2012) because all four dams will be removed simultaneously and the Iron Gate Dam monitoring site will measure the sum total of suspended sediments from all four dam sites.

Chapter 5. Flood Frequency Analysis. The drawdown analysis also evaluates flood frequency at each project to illustrate the range of possible peak flows that could occur. However, there is no discussion of the graphs presented and whether the graphs illustrate peak flows after dam removal, during dam removal, or both.

Appendix E should provide greater explanation of the model output and the results under the best and worst water year scenarios.

APPENDIX H: RESERVOIR AREA MANAGEMENT PLAN

The 2018 Reservoir Area Management Plan is intended to replace the 2011 Plan. The 2018 Plan includes updated goals and objectives, new information learned from other dam removal and restoration projects completed since 2011, and project-related details and information not available in 2011.

The Restoration Plan proposes a 10-year restoration timeline which includes 1–2 years for preparation (seed collecting and propagation, invasive plant control, etc.) and five years for plant establishment and monitoring after dam removal. Appendix H at 50. Restoration actions detailed in the Plan include manual sediment removal and grading, enhancement of longitudinal connectivity and habitat quality of tributaries (including removal of fish passage barriers), development of floodplain features (wetlands, floodplain swales, and side channels), channel complexity/floodplain roughness with the addition of large wood habitat features, and revegetation. Sediment jetting with a barge-mounted water jet is proposed during reservoir drawdown to maximize sediment erosion at Copco 1 and Iron Gate Reservoirs, and to reconnect tributaries with the river channel, as needed. SWCA's concerns regarding the plan include the following:

5.5.1 Reservoir Drawdown Sediment Evacuation. KRRC will designate culturally sensitive areas to avoid during grading. Appendix H at 60. Additional surveys should be performed during drawdown to identify cultural resources that may have been previously covered by the reservoir.

5.5.2 Tributary Connectivity. KRRC will inventory barriers to volitional fish passage and rectify as many of these as funding allows. *Id.* at 61. This section should disclose how much funding is anticipated to be allocated for this purpose, and the typical cost for those activities.

5.5.6 Revegetation.

- KRRC should coordinate with the County's Agricultural Department regarding re-vegetation concerns, including with respect to the spread of noxious weeds as a result of dam removal. The County's Agricultural Department is responsible for noxious weed control and has concerns over spreading of seeds and plants through sediment release, and moving seeds outside of normal river banks during flood events. KRRC should address these concerns.

- Both temporary and permanent irrigation will be installed in the riparian bank zone. *Id.* at 80. The plan should address how long the irrigation will remain in place or what criteria would be used to evaluate removal.

Chapter 6. Monitoring and Adaptive Management. Monitoring will be performed using visual inspections, physical measurements, ground photo points, aerial photography, and LiDAR (sediment monitoring). The monitoring plans for sediment stabilization/evolution and volitional fish passage include protocols and indicators, but they lack performance criteria by which success or failure can be measured. *Id.* at 106-108. The plan should include such performance criteria.

APPENDIX I: AQUATIC RESOURCES MEASURES

2.2.1 Fisheries Benefits of Recent Dam Removals in the Pacifc Northwest.

- KRRC anticipates that the Project will replicate the benefits of other dam removal projects in the Pacific Northwest. However, studies of the benefits of other dam removal projects lack an evaluation of long term results that only several generations of salmon and steelhead returns can verify. Further, the river conditions at the other dam removal sites discussed in Chapter 2 of the Definite Plan are far superior to the existing conditions of the Klamath River. Superior riverine conditions at the other project locations include pH levels that are near neutral (versus 9.0 or higher on the Klamath River); normal to high dissolved oxygen levels; little to no irrigation withdrawals (Rogue River excepted); clear, cold water without uncontrolled algae blooms; and glacial or spring-fed flow that provides cool and consistent flow during the warm, dry months.

- The Klamath River, upstream of Keno Dam, will not support adult salmon and steelhead survival unless these adults are transported past Keno and Upper Klamath Lake to the Williamson and Sprague Rivers (Huntington et al. 2006). Unless very significant improvements are made to allow fish access and suitable habitat is restored, the chance for successful reintroduction is very low. In addition, success is even more unlikely without strains of salmon and steelhead that 1) can survive the warmer temperatures and poor water quality, 2) return to spawn when the best possible river conditions exist, and 3) outmigrate as juvenukes from the upper watershed before river conditions reach lethal levels in the late spring (Huntington et al. 2006).

Section 2.2 Anticipated Project Benefits on the Klamath River Basin Aquatic Resources.

- This section states that Iron Gate Dam blocks access to the Upper Klamath River for three species of salmon, Pacific lamprey, and freshwater mussels. Mussels are not known to migrate upstream, so they should be removed from this statement.

- This section states that the Project will make miles of historic habitat accessible to anadromous salmonids and lamprey. Table 2-3 cites studies indicating that thousands of salmon and steelhead were historically produced in the upper Klamath River and its tributaries. However, the analysis overlooks two key elements of historical habitat:

  1) Lower Klamath Lake (which was filled and reclaimed by the US Bureau of Reclamation in the early 1900s) historically stored water from high flows, then released cool water during the rest of the year into the mainstem of the Klamath River, thus maintaining an environment that promoted rearing of juvenile salmon and allowed safe access for returning adults.

  2) The vast network of irrigation canals in the Upper Klamath River did not exist when the salmon and steelhead runs were prolific, so there is a large amount of water that no longer flows into the Klamath River. The irrigation return flows that occur now bring warmer water, suspended sediment, and a litany of agricultural chemicals that were not present in the historical habitat.

- This section mentions benefits to fall Chinook salmon only. The Definite Plan appears to concede that the Project will not in fact help spring run populations. Specifically, the only remaining spring run populations occur in the Salmon and Trinity rivers. Thus, KRRC acknowledges that "it is likely that some intervention [beyond the Project] will be necessary to re-establish spring Chinook salmon populations in the Upper Klamath Basin." Definite Plan at 226. This is noteworthy because spring run Chinook appear to be the most imperiled of the anadromous species that will be impacted by the Project, and KRRC effectively concedes that the Project alone will not benefit these populations.

- This section does not reference or describe the findings included in the final reports from expert panels on Chinook salmon, coho salmon, steelhead, and other resident fish species. In particular, it does not acknowledge the substantial uncertainty associated with benefits of dam removal for salmonids described in the expert reports. By way of example, the report of the expert panel on Chinook salmon noted that the proposed action is likely to substantially increase the range and abundance of redband, which may increase predation of Chinook salmon, thereby reducing or canceling benefits of the proposed action for Chinook salmon. *See* Klamath River Expert Panel, Chinook Salmon, Addendum to Final Report at 18. This and other points raised are ignored in the Definite Plan.

2.2.2 Water Quality and Water Temperature. KRRC claims that the Project will result in improved water quality, but does not provide a citation that substantiates that claim. The citations provided only address water temperature. KRRC should provide a citation supporting the conclusion that the Project will result in improved water quality and provide a summary of the cited source.

2.2.3 Hydrograph. This section claims that after dam removal, the resulting flow will mimic the natural hydrograph. Unfortunately, the "natural hydrograph," without a functioning Lower Klamath Lake and with extensive irrigation withdrawals, will likely have lower flows in the summer and early fall than the naturally occuring hydrograph prior to dam construction. The resulting lower flows and higher temperatures may create a barrier to adult fish migrating upstream. This issue should be addressed in the analysis.

2.2.4 Disease. With respect to fish disease, is not clear that the benefits of the Project outweigh the potential risks.

- This section states that the project is expected to reduce disease impacts to adult and juvenile salmon related to *Ceratanova shasta* (*C. shasta*) and *Parvicapsula minibicornis*. Both of these pathogens are myxozoan parasites that share vertebrate and invertebrate hosts. This section anticipates that the Project will reduce disease by restoring natural channel-forming processes. However, the Definite Plan also states that the existing pools in the Klamath River dowstream of Iron Gate Dam, will be filled in with cobble and silt, and that high flow events will eventually scour out the silt and some of the cobble, but the river will not likely return to pre-removal conditions. The existing deep pools harbor cooler water and act as refugia for migrating adults during the warmer months. Since the prevalence of infection is tied to warmer water and to crowded conditions for fish (i.e. with less cool water refugia, adults are likely to crowd into limited space), it seems more likely that disease issues will persist. In addition, *C. shasta* is prevalent in the creeks and rivers upstream of Upper Klamath Lake, so it will be difficult to control the persistence of myxozoans and eliminate the detrimental effects of infestation. (Huntington et al. 2006). At best, resistent strains of salmon and steelhead may eventually evolve, which could take a long time and countless generations before adaptation, if it were to occur at all, could come to fruition. (Huntington et al. 2006).

- Although the Project is expected to reduce fish disease because infected carcasses will be washed downstream, elevated flows may also redistribute the diseased spores throughout a longer reach of the Klamath River. The analysis should address this possibility.

2.3.1 Suspended Sediment Effects: This section anticipates that the Project will release 1.2–2.9 million metric tons of fine sediment downstream of Iron Gate Dam over a two year period. Appendix I at 31. This estimate is likely optimistic, since it assumes that much of the reservoir sediment will remain in place and stabilize. With projected suspended sediment concentrations initially exceeding 1,000 mg/l for weeks, KRRC acknowledges the negative impacts on aquatic organisms will be potentially lethal to salmon eggs and migrating adults, mussels, and lamprey adults and ammocoetes. The duration of high suspended sediment concentrations depends on how much reservoir sediment is initially flushed from each reservoir and the water year conditions that are exhibited during the dam removal year. Therefore, the adverse impacts could last for weeks, as this section projects, or they could persist for months, even years. Therefore, the suspended sediments analysis should also assess the worst-case-scenario and possible negative impacts that have been associated with other dam removal projects, such as Marmot Dam and Condit Dam, where more reservoir sediment flushed downstream through erosion and bank sloughing. (PacifiCorp Energy 2012).

2.3.2 Bedload Effects. The project is expected to initially release high amounts of sand. The proposed mitigation measure is to release flushing flows of 6,000 cubic feet per second (cfs) for days or even weeks. This is not realistic because 6,000 cfs exceeds the peak annual flow for 13 of the past 17 years. Depending on the water year, it may not be feasible to provide the proposed flushing flows. An alternative should be identified to compensate for sand deposition if adequate flows are not available to flush the sand downstream.

2.3.3 Dissolved Oxygen. With the release of reservoir sediments that are rich in organic matter, KRRC recognizes that there will be "depressed" levels of dissolved oxygen due microbial breakdown of the organic material in the sediment (known as biological oxygen demand [BOD] or chemical oxygen demand [COD]). This will make parts of the Klamath River uninhabitable for mobile species, and lethal for aquatic resources that are not mobile such as incubating eggs, freshwater mussels, lamprey ammocoetes, aquatic insects, etc. There should be a thorough analysis performed on the possible extent of BOD/COD and the resulting effects on the aquatic species in the project area.

2.4 Effects Analysis. KRRC should analyze the short- and long-term effects rather than rely on data compiled for the 2012 EIR/EIS. Given the uncertainty expressed over the effects of suspended sediment loads and low dissolved oxygen levels, and other concerns expressed in the comments above, the potentially catastrophic impacts to aquatic species should be analyzed thoroughly.

Chapter 3. Mainstem Spawning:

- KRRC proposes a new measure that is a revision of Aquatic Resources measure 1 from the 2012 EIS/R for mainstem spawning. KRRC has concluded that the updated measure is necessary to offset the short-term effects associated with dam removal on spawning Chinook and coho salmon, and upstream migration of adult steelhead and lamprey. The measure includes the following actions:

  1) Evaluate tributary-mainstem confluences in the eight-mile reach from Iron Gate Dam to Cottonwood Creek for two years. If a tributary blockage forms, then efforts will be implemented to remove the passage barrier(s).

  2) Evaluate spawning habitat of the hydroelectric reach (Iron Gate Dam to Keno Dam) and newly accessible tributaries. The action identifies a target are of 44,100 square yards of mainstem spawning gravel area and 4,700 square yards of tributary. If this area is not realized following dam removal, then gravel augmentation and retention efforts will be initiated.

  - Action 1 is inadequate because there is no provision to extend monitoring efforts beyond two years. KRRC should be willing to include monitoring and corrective actions until the upstream former reservoir areas are deemed stable.

- With respect to Action 2, only measuring spawning area and supplying gravel to match that total area is inadequate because ideal spawning habitat conditions require more than just suitable gravel. The key elements selected for spawning by anadromous fish include depth of gravel, adequate flow over the surface of the redd and a suitable amount of intergravel flow or upwelling to maintain water quality conditions for incubating eggs and fry. It is possible that, despite efforts to supply 44,100 square yards of gravel, some or all adult salmon may completely bypass augmented gravel sites. It is also possible that even if adults use the augmented gravel sites, eggs or fry may not survive in those redds in the absence of other necessary conditions. The action should address all factors affecting spawning in the mainstem and tributaries, not just gravel supply.

- KRRC also acknowledges here that the Project will result in adverse impacts to approximately 179 tributary-spawning steelhead redds. Appendix I at 36.

The proposed augmentation of seven cubic yards per compensatory mainstem redd is identified as 21 square yards at a depth of one-foot. *Id.* at 39. Typical depths for adult spring Chinook range from 0.8 to 3.3 feet (Moyle 2002), so applying gravel at a depth of just one foot may not be adequate.

3.2 Summary of affected species, project benefits and effects, recent fisheries literature, the 2012 EIS/EIR, and the proposed measure.

- Species identified in the proposed measure (as identified in the 2012 EIS/R) include coho salmon, Chinook salmon (spring and fall run), steelhead (summer and winter run), and Pacific lamprey. Table 3.4 is included below and summarizes the effects on each species. KRRC anticipates that most adults and redds will be protected from the impacts of dam removal since coho salmon typically spawn in the tributaries. As some coho salmon spawn in the mainstem of the Klamath River, KRRC estimates a loss of about 13 redds or 0.7–26 percent of the coho salmon population. This constitutes "take" of the threatened population of coho salmon and their associated critical habitat, which would seem to require a jeopardy determination with respect to those fish under the federal and California ESAs.

Table 3-4 2012 EIS/R anticipated effects summary for migratory adult salmonids and Pacific lamprey

Species	Life Stage	Likely Effects	Worst Effects
Coho Salmon	Adult Spawning	Loss of 13 redds (0.7-26%)[1]	Loss of 13 redds (0.7-26%)[1]
Chinook Salmon - Fall	Adult Spawning	Loss of 2,100 redds (8%)[1]	Loss of 2,100 redds (8%)[1]
Steelhead - Summer	Migrating Adults	No anticipated mortality	Loss of 0-130 adults (0-9%)[1]
Steelhead - Winter	Migrating Adults	Loss of up to 1,008 adults (14%)[1]	Loss of up to 1,988 adults (28%)[1]
Pacific Lamprey	Adult Migration and Spawning	High mortality (36%)[2]	High mortality (71%)[2]

Source: USBR and CDFG 2012
[1] Range of potential year class loss based on the average number of redds associated with the evaluated population(s).
[2] The 2012 EIS/R predicted Pacific lamprey mortality based on mortality models developed for suspended sediment impacts to salmonids. Model output did not include the number of predicted Pacific lamprey mortalities.

- Suspended sediment is predicted to cause 100 percent mortality of fall Chinook salmon eggs and fry spawned prior to the reservoir drawdown. That amounts to approximately 2,100 redds based on past redd survey data. Female Chinook fecundity ranges from 4,900 to 5,500 eggs per female (Moyle 2000), so the projected loss (using

5,200 eggs as the median) is expected to be 10,920,000 eggs, about 5 million smolts (50 percent egg-to-smolt mortality) and about 50,000 adults (1 percent return) prior to in-river harvest and prespawn mortality. These mortality rates are assumed based on returns to other basins but most basins that have a mix of natural- and hatchery-produced Chinook salmon have survival rates that are similar to these within a very tight range.The physiological effects of high suspended sediment concentrations on salmon, steelhead and lamprey include stress and respiratory impairment, damaged gills, reduced tolerance to disease and toxicants, and direct mortality. The severity of these effects is influenced by the concentration and duration of suspended sediments, water temperature, water flow, and disease. KRRC assumes that the adverse effects of high suspended sediment concentrations following dam removal will be reduced by the species' tendency to avoid poor water quality conditions and adapt to migrate and spawn in areas other than the mainstem, citing an example from the Elwha Dam Removal Project where adult salmon that primarily spawned in a tributary moved into the mainstem to spawn in greater numbers in the years following dam removal. Appendix I at 49. However, this possibility rests on the assumption that enough alternative habitat with higher water quality conditions exists in tributaries downstream. While that may be the case on other rivers undergoing dam removal where the water quality conditions are superior to conditions in the Klamath River, the amount of suitable habitat in this instance is limited to a few tributaries that already have water quality issues related to flow and high temperature. It is likely that, although adults may survive the Klamath River conditions during the drawdown process, overcrowding into the remaining habitats will result in indirect population losses such as increased infection by pathogens, injuries and death related to competition for desirable spawning space, and reduced survival of eggs that are laid in less desirable locations or exposed by superimposition of redds.

- Juvenile salmon egg incubation for coho salmon is 8-12 weeks (Moyle 2002). If drawdown occurs between January and mid-March, increased turbidity will negatively affect redds in the mainstem. The most recent redd survey data for coho salmon was reported by Magneson and Gough (2006), who found only 38 coho salmon redds in the mainstem Klamath River downstream of Iron Gate Dam between 2001 and 2005 in the reach from Hornbrook to Happy Camp. Coho redd distribution should be updated and referenced in the Definite Plan.
- Chinook redds seem to be at greater risk. Appendix I at 38. If high sedimentation and discharge is expected from drawdown, this could scour redds and/or fill in redds, effectively wiping out a substantial portion of Chinook redds in the mainstem. Lamprey ammocoetes can move downstream during high discharge if necessary (Grabowski 2010; USFWS 2010).
- When drawdown water is released, flows should be ramped down in a manner to prevent and reduce stranding of ammocoetes and fishes residing in the sediment downstream.

Chapter 4. Juvenile Outmigration. This chapter discusses planned trapping and hauling efforts for approximately 500 coho salmon juveniles before reservoir drawdown between Iron Gate Dam and the Trinity River, which is approximately 150 river miles. It proposes actions to relocate rescued fish to "constructed off-channel ponds," monitor tributary-mainstem connectivity for two years, and monitor water quality in 13 tributaries (e.g., water temperature and mainstem suspended sediments). Appendix I at 53.

4.1.1 Action 1: Mainstem Salvage of Overwintering Juvenile Salmonids.

KRRC states that they will sample up to 15 sites in the approximately 150 river mile stretch between Iron Gate Dam and the Trinity River one year prior to reservoir drawdown. KRRC will then undertake an overwintering yearling coho salmon relocation effort in December prior to drawdown. KRRC expects to encounter less than 500 overwintering coho salmon juveniles, citing Hillemeier et al. 2009. Appendix I at 54. The 500 coho salmon estimate is not reasonable because Klamath River coho salmon fecundity is 1,400-3,000 eggs. The Hillemeier et al 2009 study only accounted for two years of information, with results differing between years (i.e., capture frequency increased in year 2). It is unclear how KRRC got this number from the study. Morever, the study area was downstream of Iron Gate Dam. Thus, it is not reasonable to assume that the results accurately predict the

number of coho salmon that will actually be encountered. Therefore, the measure should explain the actions that will be taken if more than 500 coho salmon juveniles are encountered.

- Further, the coho salmon juveniles in December will be getting ready to smolt, and therefore will be larger fish and good swimmers. Juvenile salmon are adapted to find refugia from unfavorable conditions in the mainstem (e.g., increased flows and turbidity) and can seek out velocity refuges (Weber et al 2013), and it may not be advisable to trap and haul these fish.
- The Definite Plan should state how homing, imprinting, and straying will be affected by trap and haul efforts. Relocating fish to different streams and letting them volitionally complete smoltification potentially jeopardizes runs that returned to these different natal streams. If there are only 500 coho salmon juveniles expected to be rescued in the approximately 150-river mile reach between Iron Gate Dam and the Trinity River, this possibility is of serious concern.

4.2.2 Anticipated Project Effects on Measure Species.[1]

- Table 4-2 sets forth substantial percentages of juvenile fish that will be harmed by the Project. These would seem to require a jeopardy determination with respect to those fish under the federal and California ESAs.
- The Definite Plan should include monitoring measures for sites upstream of Iron Gate Dam where volitional passage is supposed to create habitat and introduce salmon back into the reaches that have not had access for the past 100 years.

Chapter 5. Fall Pulse Flows. This chapter indicates that KRRC intends to abandon the 2012 EIS/R measure relating to fall pulse flows intended to benefit Chinook and Coho salmon. Appendix I at 93. Therefore, KRRC cannot rely on the 2012 EIS/R to establish compliance with NEPA and CEQA.

Chapter 6. Iron Gate Hatchery Management. The objective of the Iron Gate Hatchery Management measure is to address Project drawdown and the effects on hatchery Chinook and coho smolts that will be released from the hatchery during the spring of the reservoir drawdown when periods of high suspended sediment concentrations are expected. The 2012 EIS/R included two potential actions to reduce impacts to hatchery fish: delay the release of smolts until the sediment loads diminish, or transport the smolts downstream to reaches of the Klamath River less affected by the sediment loads. Appendix I at 105. KRRC selected the first option, to delay smolt releases, and to rely on water quality monitoring stations downstream of the hatchery to inform the California Department of Fish and Wildlife when it is safe to release the smolts.

- The Iron Gate Hatchery release numbers consist of 75,000 yearling coho salmon, 900,000 yearling fall Chinook salmon, and 5.1 million fall Chinook salmon smolts. Since the Detailed Plan recognizes that releasing these fish during the drawdown would be lethal due to the high suspended sediment concentrations and low dissolved oxygen, the Definite Plan proposal is to delay smolt and yearling releases to a "limited extent." Appendix I at 107. This plan fails to consider that the water supply, which currently comes from Iron Gate Reservoir, will not be suitable during the smolt and yearling releases. Alternative water may or may not be available from Bogus Creek, but that seems to be the only reasonable source identified. The Definite Plan should consider Bogus Creek, or other available sources, as a potential replacement of the Iron Gate Reservoir water supply to the hatchery, rather than just note the uncertainty of the future source. The future source of the water supply is critical to the operation of the hatchery.

[1] The phrase "Measure Species" is unclear. *See also* Section 8.2.2. We suggest revising this to clarify intent (e.g., protected species).

- The proposal to delay hatchery fish releases also assumes that water quality will be sufficient for fish releases in time for the smolts to be released before they reverse smolting and switch to residential mode, which is a very stressful process that often results in coho salmon mortality.

- In light of these concerns, KRRC should thoroughly analyze and/or model the full range of potential water quality conditions to determine this strategy's chance of success.

Chapter 7: Pacific Lamprey Ammocoetes.

- KRRC has abandoned the measure in the 2012 EIS/R designed to reduce impacts to Pacific lamprey. There is no management plan to salvage lamprey ammocoetes because KRRC determined that impacts would be minimal. Appendix I at 112. The Definite Plan states that there is low abundance in the downstream reach from Iron Gate Dam to the Scott River. *Id.* at 114. This decision was also influenced by low site fidelity and lack of genetic diversity. *Id.* at 115.

- Given that the Project is expected to result in high mortality for Pacific lamprey ammocoetes and that the lamprey is an important cultural resource for tribes, a more extensive analysis is warranted. In particular, the plan should consider flow management to reduce the potential for stranding lamprey ammocoetes and other fishes nearing the completion of drawdown.

- It should be acknowledged that lamprey ammocoetes are not sessile and are capable of relocating. (USFWS 2010).

Chapter 8. Suckers. KRRC completed studies to determine the abundance and genetics of Lost River and shortnose suckers in the Klamath Basin. Reservoirs and stream sections will be sampled. PIT tagging will be implemented during the studies prior to dam removal. River sampling will be conducted in 2019 and 2020, and reservoir sampling will be conducted in 2018 and 2019. KRRC proposes to rescue and relocate 100 adult Lost River suckers and 100 shortnose suckers from each reservoir for a total of 600 fishes. Appendix I at 119. SWCA's concerns are set forth below.

- The measure indicates that no more than 3,000 fish will be relocated. *Id.* at 120. Therefore, any remaining sucker populations within the reservoirs will be entirely lost due to dam removal. Given the imperiled status of these species, this proposal is inadequate.

8.1.2 Action 2: Sucker Salvage and Relocation. Rescued suckers will be relocated to isolated waterbodies to "ensure hybridized suckers do not mix with sucker populations designated as recovery populations in Upper Klamath Lake." However, hybridization of suckers was common from captured juvenile suckers in Upper Klamath Lake. (Burdick et al 2015). Hybridization is thought to occur between the different Klamath River suckers. Results from genetic analysis should be used to determine if fish should be relocated to Tule Lake as proposed.

- Additionally, in 2010, suckers were removed from Tule Lake and relocated to Upper Klamath Lake due to concerns over Tule Lake water levels. (Courtner, Vaughan, and Duery 2010). Tule Lake is the target receiving water for these relocated fish from the Klamath River reservoirs. If dry conditions exist during the rescue, this would pose the same risk of relocated fish dying due to water conditions in Tule Lake. This measure would also indicate that in the future, suckers should not be salvaged in Tule Lake and relocated to Upper Klamath Lake, even though this action was already taken in 2010. There is no evidence that Klamath small-scale suckers are present in Tule Lake. If this is the case, then the introduction of "hybrids" rescued from the Project reservoirs potentially jeopardizes the population of suckers in Tule Lake.

- Endangered Species Act regulations for protection of hybrids is somewhat unclear. The Intercross Policy, while not formally adopted or redacted, provides the U.S. Fish and Wildlife Service and National Marine Fishery Service flexibility in dealing with hybridized animals (Frey 2015). The Definite Plan states that "the proposed relocation of rescued suckers to isolated waterbodies is to ensure hybridized suckers do not mix with sucker populations designated as recovery populations in Upper Klamath Lake." In other words, the

introduction of "hybridized" suckers that are said to be partly Klamath small-scale suckers into Tule Lake would preserve the recovery population of the Lost River sucker and shortnose suckers in Upper Klamath Lake. However, this contradicts actions taken in 2010 by the Bureau of Reclamation when "hybridized" suckers from Tule Lake were introduced into Upper Klamath Lake. Appendix I at 119.

8.2.2. Anticipated Project Effects on Measure Species. This section claims that the lower Klamath sucker populations are not viable or self-supporting. *Id.* at 122. This does not seem consistent with the apparent potential that there are in excess of 3,000 suckers in the lower Klamath reservoirs. *See id.* at 120. There is a paucity of empirical research to confirm (or falsify) the claim that the lower Klamath populations are not viable.

- Further, the anticipated loss of Lost River and shortnose suckers reservoir populations disclosed in Table 8-1 should be considered "take" under the Endangered Species Act. The State of California has chosen to view the fish located in the Project reservoirs as a different population that is not covered by Endangered Species Act. The lower reservoir fish are a segment of the whole population that left the upper watershed to colonize downstream. There is no provision in the Endangered Species Act to make a separation.

8.2.4 KRRC's and the ATWG's Review pf AR-6 for Feasibility and Appropriateness. The 2012 EIS/R included a telemetry study, sucker salvage, and release into Upper Klamath Lake to benefit the Lost River and shortnose suckers. Appendix I at 122. But KRRC does not intend to implement these measures. *Id.* at 123-125. Therefore, KRRC cannot rely on the 2012 EIS/R to establish compliance with CEQA and NEPA.

Chapter 9. Freshwater Mussels. The Definite Plan will address salvage and relocation of freshwater mussels. As stated in the Definite Plan, mortality of translocated mussels is fairly high (Cope and Waller 1995). Appendix I at 133. There is insufficient data addressing how mussels will respond to drawdown. The Definite Plan states that "more consideration must be given to habitat characterization at both the source and translocation sites." *Id.* Data is not yet available from the pilot project to investigate key factors important for survival. Therefore, the consideration of impacts to freshwater mussels and potential mitigation measures is inadequate, and more information on impacts to freshwater mussels is needed before proceeding with the Project.

APPENDIX J: TERRESTRIAL RESOURCES MEASURES

Appendix J only considers a few threatened and endangered species that may be impacted by the Project. Since the findings in the 2012 EIR/EIS, other species that may be impacted by the Project have been listed under the federal and California ESAs.

- KRRC should reevaluate the list of threated, endangered, and special status species on the federal, state, and local level, and perform the baseline studies/habitat surveys for the species in order to adequately evaluate the impacts of the Project.
- For example, the Humboldt Marten (*Martes caurina humboldtensis*) was listed as endangered under the California Endangered Species Act by the California Department of Fish and Wildlife (CDFW) in August 2018. Based on a desktop literature search, we have found that since the biological surveys were completed in 2002–2004, additional studies on habitat, range and population have occurred for the Humboldt Marten. *See* the Arcata Fish and Wildlife Office Report, *Species Assessment for the Humboldt Marten (Martes Americana humboldtensis)* (Hamlin et al 2010). (https://www.fws.gov/arcata/es/mammals/HumboldtMarten/documents/Humboldt%20Marten%20Species%20Assessment%20Sep2010.pdf). To adequately evaluate the impacts to this species, the KRRC should conduct an approved protocol level survey within and surrounding (within the recommended buffer) prior to the release of the CEQA/NEPA documents.

- Much of the evaluation on terrestrial species in the Definite Plan is based on information from the 2012 EIR/EIS. Much of that data was obtain prior to 2012 and is therefore outdated by scientific standards. The analysis should be based on updated studies, surveys, and literature.
- KRRC should undertake pre-construction surveys within the project area for all threatened, endangered, or special status federal, state, and local species. Due to the time lag between surveys and field studies occurring at this time (for the Definite Plan), and future construction, species may move into previously unoccupied areas. Therefore, pre-construction surveys should be added to the avoidance and minimization measures for all species mentioned in Appendix J.

Chapter 1. Northern Spotted Owl ("NSO") Measures. The Definite Plan states that a "desktop evaluation" was used to determine whether NSO activity centers exist within the Project area. Appendix J at 11. This is not a reliable method to make such a determination. It is also premature for KRRC to conclude that "the Project will not result in NSO habitat modification" until sufficient field studies have been conducted within and surrounding the disturbance areas. *Id.* at 14. Field surveys should also be conducted during breeding seasons to identify breeding and nesting sites.

Chapter 2. Bald Eagle and Golden Eagle Measures. The surveys that the Definite Plan proposes are too narrow in scope. Specifically, KRRC proposes limiting surveys to viewshed areas within 0.5 mile of the limits of work. *Id.* at 23. Surveys should be conducted beyond the 0.5-mile radius, including up to two miles, to identify eagle activity centers in those areas so as to enable KRRC to develop avoidance or mitigation measures to protect the species. In addition, KRRC notes that, "as there is high potential that bald eagles had already fledged prior to the survey date, some active nests may have been missed, especially if eagles used alternate or unknown nests." *Id.* at 25. Therefore, additional field surveys should be conducted to determine whether additional active nests exist within the disturbance and potential disturbance areas. Lastly, the area within two miles of the J.C. Boyle, Iron Gate and Copco Reservoirs were not surveyed. No scientific explanation is provided for why these areas were not surveyed. *Id.* at 28.

Chapter 3. Special Status Wildlife Species Measures. The data relied upon to develop special status wildlife species measures are from 2001-2003 and highly outdated. *Id.* at 31. Additional surveys should be conducted to determine if other special species occurrences exist within the relevant areas.

- Further, KRRC's 2018 general wildlife survey area, which is limited to within 0.25 miles of the dams and structures to be removed, should be expanded. *Id.* at 32. This survey area does not include downstream impacts, which will be significant, especially for species that utilize emergent wetlands and riparian areas. There are wetland and riparian areas that will be altered by changing water flows and sedimentation. These areas are currently not evaluated in the survey area, and therefore cannot be adequately evaluated for impacts.
- Amphibians and reptile surveys should be conducted not only within the current survey area, but also downstream. The downstream survey area should include all areas of the river that will be impacted by changes in water flow and sedimentation depositions. Sediment load and changes in the hydrology will change the streambank and emergent wetland areas. These areas need baseline data on the species that currently occupy, or could occupy this habitat, in order to adequately evaluate impacts of the Project.
- Some of the proposed avoidance and minimization measures do not appear consistent with best species management practices. For example, KRRC proposes placing traffic cones or other exclusionary devices in nests or on net platforms to prevent nesting in the year of construction. *Id.* at 37. Such deterrence activities may also deter the birds from returning in future years, which would therefore disrupt the birds' nesting habits long-term. In addition, the Definite Plan does not include adequate protections for four wildlife species that are protected by the California ESA ("CESA"). The tricolored blackbird and willow flycatcher are both listed under CESA. *Id.* at. 36. And the Cascades frog and footfill yellow-legged frog are both candidates for listing under CESA. *Id*. at. 35. As described above, KRRC does not intend to comply with the provisions of CESA on the grounds that it is preempted and, therefore, is intending to harm these species without undertaking a jeopardy determination and fully mitigating the harm as state law requires.

Chapter 4. Bats Measures. KRRC's surveying efforts appear inadequate. Surveys have been canceled, and others are uncertain. *Id.* at 64. KRRC should commit to performing adequate surveys to determine the impact of the Project on the relevant bat species. KRRC's obligations with respect to implementation of the bat measures are also subject to a determination of "feasibility." Appendix J at 66. Few details are provided with respect to how KRRC will make such a determination.

Chapter 5. Special Status Plants Measures. KRRC's proposed remedial measures appear inadequate. Specifically, if special status plants cannot be avoided during construction, KRRC intends to evaluate the potential for seed collection and propagation at local nurseries for replanting and/or as part of a seed mix to be used during restoration activities. Appendix J at 76. It is unclear whether these are viable options, or whether the harm to the special status species will be significant.

Chapter 6. Vegetation Communities and Wetlands Measures. The Definite Plan does not appear to set forth avoidance, mitigation, and offset measures to mitigate the potential effects of the Project on, among other things, wetland habitat used by migratory birds.

APPENDIX K: ROAD AND BRIDGE STRUCTURE DATA AND LONG-TERM IMPROVEMENTS

Page 1: Copco Road from Ager Road to Daggett Road is noted to be in poor condition; however, no upgrades to the roadway are proposed. Copco Road in this location has no shoulder, is poorly striped, and has deteriorating pavement. KRRC should clearly identify the need for repaving to avoid any potential issues to haul routes and residents. Repaving the roadway will also alleviate potential safety concerns.

Page 1: Copco Road from Daggett Road to Copco Access Road is noted to be in poor condition; however, no upgrades to the roadway are proposed. Copco Road from Daggett Road to Copco Access Road is an unimproved, very narrow roadway that has many low and overhanging trees that could obstruct trucks. Copco Road will need upgrades, widening, and tree trimming to accommodate haul trucks. KRRC should clearly identify improvements to be made prior to construction.

Page 2: Copco Road between Copco 1 Access Road to Copco Bridge will not be used for dam or powerhouse removal. KRRC should place signs to indicate that no haul trucks shall proceed past Copco Access Road, or make improvements to the roadway to allow for construction traffic and ingress/egress of residents.

Page 4: Drawdown and post-project flows have the potential to cause erosion at the abutments or central pier of Copco Road Bridge. KRRC should further evaluate the need to reconstruct the Copco Road Bridge prior to Project implementation. If the Copco Road Bridge fails, residents on the north side of Copco Reservoir will only have one ingress and egress route (Copco Road, which is poorly maintained).

APPENDIX L: CULTURAL RESOURCES PLAN

Chapter 2. Plan Overview. The Area of Potential Effects (APE), for the purposes of compliance with the National Historic Preservation Act, has yet to be defined. Appendix L at 15, 29. The plan states that the APE will be identified based on the historic built environment evaluation report to be prepared by KRRC, but does not provide any information regarding the timeline. *Id.* at 55-56.

6.2.4 General Inventory and Resource Recordation Methods. Archaeological survey methods used by KRRC include pedestrian survey transects spaced 15 meters apart however, they should also include subsurface testing in areas considered high probability for the presence of cultural resources. *Id.* at 50.

KRRC's archaeological inventory methodology does not include subsurface testing in high probability areas for the presence of cultural resources within the APE. Pedestrian surveys in areas with low mineral soil visibility or buried archaeological resources are not effective without systematically sampling for buried, near-surface deposits. Accordingly, inventory methodology should include subsurface testing.

Chapter 7. Resource Evaluation. Previously identified cultural resources within the Area of Direct Impact (ADI) that are unevaluated or "potentially eligible" for the National Register of Historic Places will require testing and evaluation fieldwork. Site-specific methods should be developed. *Id.* at 55.

KRRC will conduct an evaluation of historic built environment resources and prepare two reports (one for each state) that will identify the APE, evaluate the resources, assess project effects, and make recommendations to avoid and minimize effects and mitigate adverse effects. These recommendations for mitigation should be included in the Cultural Resources Plan.

Chapter 8. Management Plans and Agreement Documents. Many of the items within the Cultural Resources Plan are still being developed by the KRRC and lack sufficient detail. The Plan states that the Historic Properties Management Plan (HPMP) will include protocols for cultural resource identification and evaluation during dewatering activities and effect avoidance, minimization, and mitigation for historic properties; however, these protocols are still unknown and lack detail. *Id.* at 61. The Inadvertent Discovery Program, the Cultural Resources Monitoring Plan, and the Looting and Vandalism Prevention Plan also lack sufficient detail. *Id.* at 62-65. The Cultural Resources Plan should be updated upon completion of all analyses and include all minimization and mitigation measures.

APPENDIX M: WATER QUALITY MONITORING PLAN

2.1.2 Contaminants in Sediment. The Water Quality Monitoring Plan states that the sediments in each reservoir are suitable for unconfined, aquatic disposal and that the contamination risk is unlikely. Appendix M at 16. This statement is contrary to information provided in the 2012 EIR/EIS, which states:

> Results indicate that sediment in all three reservoirs exceeded freshwater ecological SLs for nickel, iron, and 2,3,4,7,8-PECDF (Table C-5). Sediment in J.C. Boyle Reservoir also exceeded freshwater ecological SLs for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, dieldrin, and 2,3,7,8-TCDD (Table C-5). Several pesticides and semi-volatile organic compounds (SVOCs) were not detected in the reservoir sediments; yet, the reporting limits were above the freshwater SLs, so other lines of evidence were used to asses these compounds. Similarly, human health SLs were only exceeded for arsenic and nickel, pentachlorophenol (in the case of J.C. Boyle Reservoir), and some legacy pesticides (e.g., 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, dieldrin, see Table C-6). Several dioxin-like compounds were detected and exceeded the ODEQ Bioaccumulation SLVs (Table C-6).

The 2012 EIR/EIS also states the following regarding fish tissues, which has significant impacts for human fish consumption:

> In a screening-level study of potential chemical contaminants in fish tissue in Keno, J.C. Boyle, Copco, and Iron Gate Reservoirs, and in Upper Klamath Lake, PacifiCorp analyzed metals (i.e., arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc), organochlorine (pesticide) compounds, and PCBs in largemouth bass (*Micropterus salmoides*) and black bullhead catfish (*Ameiurus melas*) (PacifiCorp 2004c). PacifiCorp reported that, in general, contaminant levels in fish tissue are below both screening level values for protection of human health (USEPA 2000) and recommended guidance values for the protection of wildlife (MacDonald 1994). Exceptions to this include measured fish tissue levels of total mercury in samples from

> Copco 1 and Iron Gate Reservoirs as compared to the wildlife screening level of 0.00227 µg/g and measured fish tissue levels of arsenic (<0.3 ug/g) that PacifiCorp indicated may equal or exceed the toxicity screening level for subsistence fishers (0.147 µg/g) in samples of largemouth bass from J.C. Boyle, Copco 1, and Iron Gate Reservoirs. Subsequent reanalysis of the PacifiCorp mercury tissue data indicates that all tissue samples exceed the most protective wildlife screening level of 0.00227 ug/g, samples from Keno, J.C. Boyle, Copco 1, and Iron Gate Reservoirs exceed the screening level for subsistence fishers (0.049 µg/g), and samples from Copco 1 and Iron Gate Reservoirs exceed the screening level for recreational fishers (0.4 µg/g) (Table C-9).

Because fish tissues analyzed in the Klamath basin show bioaccumulation at levels that cause concern, this indicates that toxins are present in either the sediments or the water column, and that these toxins are present in consumable fish tissue. It is possible that the lab analyses did not use detection limits that were low enough to thoroughly characterize suspected toxins, or that the sediment grab samples were not sufficiently random to represent the actual conditions in the reservoir sediments that have resulted in fish tissue bioaccumulation.

2.1.3 Algae in the Klamath Hydroelectric Reach. Regarding algae contamination in the reservoirs and downstream of Iron Gate Dam, the plan states that

> [t]he relative significance of contributions of the reservoirs and upstream sources [of algae toxins] is complex and disputed. The KRRC does not state a position on the relationship or relative significance of such sources. To the extent that these reservoirs are a source, the Project will remove the source.

Appendix M at 16. Upper Klamath Lake and Lake Euwana are major sources of algae and the toxins that they produce. These sources should be included in the analysis of the effects of dam removal on algae contamination.

KRRC will develop a sediment characterization plan in consultation with the regulatory agencies for the states of Oregon and California. *Id.* at 25. The details of the sediment characterization plan need to be developed and published with sufficient time for public review and comment.

APPENDIX N: GROUNDWATER WELL MANAGEMENT PLAN

- The technical rationale for limiting the Groundwater Well Management Plan (GWMP) target area (i.e., the database search area) to a 2.5 mile radius from the project reservoirs should be explained. Appendix N at 15.
- The location of the shared spring water supply near Copco Lake is missing from Figure 2 in Appendix N.
- A conceptual hydrogeologic model should be developed for the target area with regard to the anticipated aquifer characteristics within the target area, and the source zones for the current 124 wells, e.g., overburden versus fractured rock. After this has been accomplished, the GWMP should be revised with the sentinel well design, taking into account the potential impact of the reservoir drawdown on the current well water supply sources. Multi-level sentinel wells will likely be required, which have not been accounted for in the GWMP. SIR 2007-5050 and SIR 2012-5062 are publications prepared by the U.S. Geological Survey, and are references that should be cited within the GWMP.
- The field study results associated with outreach to landowners and residents should be augmented with groundwater modeling to predict the reservoir drawdown effects on the aquifers within the target area. Appendix N at 16.

2.6 Proposed Actions.

- Without any evidence of excessive pumping by a well owner, there should be no question that a well with diminished water supply in the target area following dam decommissioning is a direct result of the reservoir drawdown. Therefore, the phrase “and that these circumstances are attributable to reservoir removal” should be struck.
- The analysis should address the impact of a future drought on the current water supplies. SIR 2007-5050 has identified a 10-foot decline in groundwater levels in portions upper Klamath River basin.
- In addition to the water supply wells and springs, the analysis should address the impact of the reservoir drawdown on groundwater-fed streams within the target, as these streams support irrigation and presumably an aquatic ecosystem. The US Fish and Wildlife and National Marine Fisheries Service issued biological opinions in 2001 that anticipate a reduction in surface water withdrawals in the upper Klamath River basin.
- Besides the one spring mentioned near Copco Lake, there are numerous other springs that need to be catalogued and monitored within the GWMP. Appendix N at 15.
- The nature of the Sky Lakes Fault Zone as a hydrogeologic barrier of flow was mentioned within the 2012 EIS/EIR, but is not addressed by the GWMP.
- The GWMP should also address the following nearby community water supplies:
    - The City of Yreka currently receives its municipal water supply from Fall Creek.
    - Water supply in Hornbrook, Copco Village, and Beswick comes from private groundwater wells.
    - Water supplies in unincorporated Klamath County come from private groundwater wells and public water companies, and some water is supplied by Klamath Falls.
    - Water supplies come from Merrill City groundwater wells on Front Street. Klamath Falls Water Division is responsible for providing water to more than 40,000 residents in the urban area (total storage capacity of 16 million gallons) from groundwater wells.

- The City of Chiloquin supplies water to all city residents as well as some residents that are outside of the city but within the urban service area from a single groundwater well.

APPENDIX O1: FIRE MANAGEMENT PLAN

- The Fire Management Plan (FMP) notes that helicopter water tanks will be filled along portions of the Klamath River deeper than three feet after the drawdown of the reservoirs. Appendix O1 at 41.The FMP states that aerial analysis shows deep pools with suitable conditions for helicopter filling exist near the three reservoirs. *Id.* It should be noted that helicopters may not be able to fill their water tanks in the vicinity of the post-drawdown-reservoirs due to the canyons that will develop around the rim of the existing reservoirs and downstream. Helicopters require a relatively wide, flat topography in order to draft water safely. Alternatively, it is possible that many of the existing pools will fill with silt and sediment released during dam removal. Under either alternative, helicopter round-trip travel time may be higher than the 15 minutes estimated due to the helicopters having to fly far upstream or downstream of the existing dam facilities to find suitable filling conditions.

- The FMP proposes dry hydrants as water supply infrastructure for post-removal firefighting. *Id.* In addition to dry hydrants, the FMP should also include other permanent sources of water that can be used for aircraft firefighting activities. This is especially critical due to the possibility that river conditions will be inadequate for water tank filling post-drawdown, as noted above. The FMP should identify permanent water sources (such as dip tanks) that will be strategically placed along the Klamath River corridor to support aircraft firefighting activities. The permanent water sources could be filled with Klamath River water extracted via the proposed dry hydrants. Given the devastating wildfires that have occurred, and will likely continue to occur, throughout the Project area, every precaution should be taken to mitigate fire risk.

APPENDIX O2: TRAFFIC MANAGEMENT PLAN

Chapter 1. Need for Traffic Management Plan. Table 1.1-1 (Primary Access Route Summary) identifies Patricia Avenue as a local access road; however, Patricia Avenue is not mentioned as an access road or haul route of significance in Appendix K, Road and Bridge Structure Data and Long-term Improvements. Appendix O2 at 10. KRRC should indicate the condition of the road and any proposed improvements during or after construction in Appendix K.

1.2 Management Strategies.

- "Traffic Safety Effects" is proposed as a management strategy. *Id.* at 11. However, there are no specific examples of where traffic safety effects would be implemented. Please identify traffic safety hazards in Appendix O2 and/or Appendix K, and identify the best practice signage, traffic management systems, and dust control practices to be implemented at each location.

- Siskiyou County Sheriff's Department has expressed concern over access for law enforcement and emergency services during times of heavy traffic during construction, as well as concerns about access during flooding events during and after removal. The Traffic Management Plan should address these issues.

APPENDIX O3: HAZARDOUS MATERIALS MANAGEMENT PLAN

- The list of structures identified at each of the dam locations appears to be thorough. Appendix O3 at 9. Table 1 lists the anticipated types of hazardous wastes that may be present at each of the dams and includes several

unknowns regarding contaminated soils (from exterior painting with lead-based paint [LBP]), polychlorinated biphenyl (PCBs) (even though equipment tested negative, there may still be residual concentrations present), and mercury containing equipment/fixtures (e.g., switches). *Id.* at 10.

- KRRC will update the Hazardous Materials Management Plan (HMMP), as appropriate, following the planned Phase I ESA visits and interviews and the Phase II Site Investigation, if needed after the Phase I ESA. *Id.* at 9. As indicated in the SWCA Technical Memorandum dated April 19, 2018, review of the data from the previous sediment characterization effort suggested that additional assessment may be warranted to include: additional deep-sediment samples; additional Total PCB analyses, especially from the deeper sediments; and additional polycyclic aromatic hydrocarbon (PAH) analyses so that the detection level, at a minimum, falls between the threshold effect concentration (TEC) and predicted environmental concern (PEC) values, instead of greater than the PEC levels. This additional assessment presumably would be part of the Phase II ESA effort that would be needed to further characterize the potential waste materials and associated hazardous or toxic constituents.

- The sections of Chapter 1 describe for each dam the types of waste materials expected to be generated during dam decommissioning, and include inventories of hazardous materials provided by PacifiCorp. Hazardous and toxic constituents are listed for several of the waste materials that will be generated. However, some waste materials are omitted. The following hazardous and toxic constituents may be associated with these potential waste materials:

    - **Asbestos** – Asbestos-reinforced cement was developed in the early 1900s and was used extensively throughout the United States from the early- to late-1900s. About 24 manufacturers offered asbestos-containing cement products, with an asbestos content of 2–10% by weight. Asbestos improved the cement's performance, helped reduce cracking, and was added to the mixture of cement that was used in a variety of industrial, commercial, and residential construction products. Asbestos is an incredibly strong substance. When added to building materials and other heavy-duty items, it helps to create goods that are very tough and durable, holds up well under most any type of weather conditions (cold or heat), and withstands water and fire. These properties made asbestos-reinforced cement/concrete ideal for water conveyance pipes, dams, or other concrete structures. In addition to ceiling and floor tiles, roofing and siding materials, and electrical wire insulation, asbestos may be present in concrete pipes (water conveyance structures at the dams and/or smaller diameter pipe used with septic tank/drainfield systems), other concrete structures, electrical and thermal insulation panels, gaskets, and packings. Demolition and removal of these structures/materials could generate dust and airborne asbestos fibers, and should be tested for asbestos as part of the Phase II Environmental Site Assessment (ESA) sampling activity and managed accordingly.

    - **Heavy metals** – Heavy metal-containing paints or lead-based paints (LBP) on exterior surfaces and equipment may have contaminated adjacent soils during painting and maintenance activities. LBP was routinely used for interior and exterior surfaces during the earlier operational periods of the dams. Soils near painting and maintenance operations should be tested as part of the Phase II ESA sampling activity to assess their hazardous or toxic characteristics.

    - **Insulators** – Where high mechanical strength is required, a porcelain rich in alumina is used to manufacture the insulator. During demolition, the insulators may be broken, releasing high-alumina content dust. The types and quantities of power line insulators should be assessed for alumina content and potentially hazardous or toxic alumina concentrations in the dust that may be generated during demolition activities.

- The Hazardous Materials Management Plan describes what kinds of waste will be removed at each dam location, but lacks protocol for evaluating the characteristics of the waste. The plan should include the hazardous materials testing procedures to be implemented at each dam removal location.

APPENDIX O4: EMERGENCY RESPONSE PLAN

1.5 Hazardous Material Spill Management. The Spill Prevention and Response Plan fails to address the following issues:

- Spill supplies and equipment used to clean and contain spills;
- Storage location of spill supplies and equipment;
- Secondary containment requirements for construction equipment and materials; and,
- Waste storage and disposal procedures.

These issues should be addressed in the Spill Prevention and Response Plan.

APPENDIX O5: NOISE AND VIBRATION CONTROL PLAN

The Noise and Vibration Control Plan describes the measures to be implemented to minimize the effect of noise and vibration on sensitive receptors. Appendix O5 at 9. However, the plan does not include any noise or vibration monitoring procedures to confirm compliance with established thresholds. KRRC should indicate whether such monitoring procedures will be included in the final Noise and Vibration Control Plan.

APPENDIX Q: DRAFT RECREATION PLAN

2.3.2. New Facilities and Plans. The Draft Recreation Plan includes the additional recreational mitigation measures proposed by Siskiyou County and SWCA during the April 5, 2018 meeting with KRRC and AECOM. However, the plan does not identify organizations or agencies that will be responsible for the operation and maintenance of the existing and new proposed facilities (with the exception of BLM-managed facilities).

Chapter 3. Recreation Opportunity Evaluation and Screening. This chapter outlines criteria that will be used evaluate consistency of each recreation project with the Recreation Objectives (section 1.3). To satisfy Criteria C and D, there must be an entity or entities responsible for operation and maintenance of the recreational facilities after KRRC surrenders its license, and the project must not generate increased demand that would make it difficult to manage. Appendix Q at 41. Therefore, the plan should provide that entities that will assume responsibility for the recreation projects should be determined prior to the evaluation process.

REFERENCES

Burdick, SM., Elliot, DG., Ostberg, CO., Conway, CM., Dolan-Caret, A., Hoy, MS., Feltz, KP., and KR Echols. 2015. Health and Condition of Endangered Juvenile Lost River and Shortnose Suckers Relative to Water Quality and Fish Assemblages in Upper Klamath Lake, Oregon, and Clear Lake Reservoir, California. US Geological Survey Open-File Report 2015-2017, p. 56.

Courter, I., Vaughan, J., and S. Duery. 2010. 2010 Tule Lake Sucker Relocation Project. Prepared for the US Bureau of Reclamation, Klamath Basin Area Office.

Frey, O. 2015. When Science and the Statue Don't Provide an Answer: Hybrid Species and the ESA. Available at: https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1324&context=delpf.

Grabowski, SJ. 2010. Response of Pacific Lamprey Ammocoetes and Macropthalmia to Several Physical and Behavioral Guidance Devices. US Bureau of Reclamation, Boise, ID.

Huntington, C., E. Claire, F. Espinosa Jr, and R. House. 2006. Reintroduction of Anadromous Fish to the Upper Klamath Basin; an Evaluation and Conceptual Plan. Prepared for the Klamath Tribes and Yurok Tribes. p. 63.

Major, J.J., O'Connor, J.E., Podolak, C.J., Keith, M.K., Grant, G.E., Spicer, K.R., Pittman, S., Bragg, H.M., Wallick, J.R., Tanner, D.Q., Rhode, A., and Wilcock, P.R. 2012. Geomorphic response of the Sandy River, Oregon, to removal of Marmot Dam: U.S. Geological Survey Professional Paper 1792. p. 64.

Moyle, P. B. 2002. Salmon and Trout, Salmonidae - Chinook Salmon, (Oncorhynchus tshawytscha) in Inland Fishes of California. Los Angeles, California: University of California Press, pp. 251-263.

PacifiCorp. 2004. Cultural Resources Final Technical Report and Associated Confidential Appendices. Klamath Hydroelectric Project FERC No. 2082. PacifiCorp, Portland Oregon.

PacifiCorp. 2012. Post-Reservoir-Dewatering Report. Condit Hydroelectric Project Decommissioning. FERC Project No. 2342.

USFWS. 2010. Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (Entosphenus tridentatus). https://semspub.epa.gov/work/10/100016741.pdf

Weber, C., Nilsson, C., Lind, L., Alfredsen, KT, and LE Polvi. 2013. Winter Disturbances and Riverine Fish in Temperate and Cold Regions. Bioscience 63(3):199-210.

COUNTY OF SISKIYOU
Board of Supervisors

P.O. Box 750 ▫ 1312 Fairlane Rd
Yreka, California 96097
www.co.siskiyou.ca.us

(530) 842-8005
FAX (530) 842-8013
Toll Free: 1-888-854-2000, ext. 8005

June 06, 2018

Assemblyman Jim Wood, District 2
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0002

Subject: Opposition – AB 2640 Protected species: Lost River sucker and shortnose sucker limited take authorization

Dear Assemblyman Wood:

The Siskiyou County Board of Supervisors is writing this letter to express our opposition of *AB 2640 Protected species: Lost River sucker and shortnose sucker limited take authorization*; which would permit the California Department of Fish and Wildlife to authorize the take or possession of suckers resulting from impacts associated with the removal of the four Lower Klamath River dams.

In late May 2018, the Klamath Tribes filed a lawsuit in the United States District Court for the Northern District of California seeking to shut down the Bureau of Reclamation's Klamath Project, which supplies water to over 200,000 agriculture acres and hundreds of family farms in northern California and southern Oregon. The substance of the Tribes' complaint is that the Lost River and short nose suckers are in great peril and at extreme threat of extinction by diversion of water from Upper Klamath Lake to support farming. As part of this lawsuit, the Tribe is requesting the assigned Judge to order an injunction on lake elevation levels, above Biological Opinion thresholds which are currently being met while irrigation is occurring; which would completely shut down Klamath Project irrigation if ordered.

The Lost River sucker and shortnose sucker are listed as endangered species under the federal and California Endangered Species Act. They are also a fully protected species under California law, which means that their take is prohibited by law with narrow exceptions for scientific research, efforts to recover the species, and where conservation and management of the species is provided for in a natural community conservation plan, approved by the Department of Fish and Wildlife.

At the same time that the Tribe is seeking an injunction which would shut down farming and ranching in the Klamath Project to purportedly save fully protected suckers, AB 2640 is positioned to grant a legislative waiver of these protections, for a project that would permanently eliminate

reservoir habitat above the dams currently occupied by both sucker species, and would result in the extirpation of the species in that portion of their range. In light of the precarious status of the species and a dearth of information regarding its contemporary distribution and abundance, as well as the prominent role of the State of California as an advocate for dam removal, those concerned about the fate of the suckers should question if the State has a greater interest in dam removal than the survival of the endangered suckers; by attempting to side-step law rather than abiding by it, as every other entity, landowner, or project proponent is required to do.

Due to the issues outlined above, we urge you to reconsider AB 2640 by not allowing its passage, and rather require that State law is met and abided by. Please feel free to contact, Elizabeth Nielsen, Siskiyou County Project Coordinator, at any time at enielsen@co.siskiyou.ca.us or (530) 842-8012.

Sincerely,

Ray A. Haupt, Chair
Board of Supervisors

COUNTY OF SISKIYOU
Board of Supervisors

P.O. Box 750 ▫ 1312 Fairlane Rd
Yreka, California 96097
www.co.siskiyou.ca.us

(530) 842-8005
FAX (530) 842-8013

July 17, 2018

Ms. Michelle Siebel
State Water Resources Control Board
Division of Water Rights- Water Quality Certification Program
PO Box 2000
Sacramento, CA 95812-2000

Subject: Comments re Draft California State Water Resources Control Board Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project

Dear Ms. Siebel:

The Siskiyou County Board of Supervisors, through coordination with its consultant, SWCA Environmental Consultants, writes this letter to provide comments on the California State Water Resources Control Board's (California Water Board) *Draft California State Water Resources Control Board Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project.*

It is the County's understanding that the draft Water Quality Certification has been published for comments prior to the release of the draft Environmental Impact Report that the California Water Board is drafting related to the Klamath River Renewal Corporation's application to the Federal Energy Regulatory Commission to remove the four Lower Klamath River Dams. The County anticipates the release of the draft EIR later this year, which should include a much more robust and detailed analysis of all impacts as a result of potential dam removal, many of which will significantly impact Siskiyou County. This letter is not meant to serve as the County's final comments related to the Water Quality Certification, and additional comments will be provided when the California Water Board makes the draft EIR available for public comment.

Coordination with Oregon Department of Environmental Quality

U.S.C. §1341 (a)(2) stipulates that when a discharge may affect the quality of the water of a downstream state, the upstream state must notify the downstream state. As the Oregon Department of Environmental Quality has issued a draft Water Quality Certification in parallel with the California Water Board's draft certification, additional information must be provided in Section 1, Background, to provide the public with any coordination and notification processes that have transpired between the two agencies. The California Water Board must ensure that Oregon's draft Water Quality Certification meets all water quality standards and adopted criteria. There is nothing in the California Water Board's draft Water Quality Certification that describes that this cumulative

analysis has taken place; and as such Siskiyou County requests that they be provided with this information.

Condition 1. Water Quality Monitoring and Adaptive Management

Under the "Reporting and Adaptive Management" subsection on pages 17 and 18 of the draft California Water Quality Certification, the condition states that "Monitoring and monthly reporting shall continue until otherwise approved by the Deputy Director." This condition should include the parameter(s) by which the Deputy Director would conclude that monitoring and monthly reporting is no longer required; and again we request that this information be provided to Siskiyou County.

Condition 4. Anadromous Fish Presence

Under the Frequency and Duration subsection on page 24, the condition states that "Fish presence surveys shall be conducted for at least four consecutive years and until otherwise approved or modified by the Deputy Director." This condition should include the parameter(s) by which the Deputy Director would conclude that fish presence surveys are no longer required; and we request that this information be provided to Siskiyou County.

We look forward to the California Water Board's responses to our comments and inquiries; please feel free to contact Elizabeth Nielsen, Project Coordinator, at (530) 842-8012 or enielsen@co.siskiyou.ca.us. This letter was approved by the Siskiyou County Board of Supervisors on July 17, 2018, by the following vote:

AYES: Supervisors Haupt, Kobseff & Criss
NOES: None
ABSENT: Supervisors Nixon & Valenzuela
ABSTAIN: None

Sincerely,

Ray A. Haupt, Chair
Board of Supervisors

cc: ODEQ

COUNTY OF SISKIYOU
Board of Supervisors

P.O. Box 750 □ 1312 Fairlane Rd
Yreka, California 96097
www.co.siskiyou.ca.us

(530) 842-8005
FAX (530) 842-8013

July 17, 2018

Chris Stine, Hydroelectric Specialist
State of Oregon Department of Environmental Quality
165 E 7th Ave, Suite 100
Eugene, OR 97401

Subject: Comments re Draft Oregon Department of Environmental Quality Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project

Dear Mr. Stine:

The Siskiyou County Board of Supervisors, through coordination with its consultant, SWCA Environmental Consultants, writes this letter to provide comments on the Oregon Department of Environmental Quality's (ODEQ) draft *Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project (Water Quality Certification).*

Coordination with California State Water Resources Control Board

1. U.S.C. §1341 (a)(2) stipulates that when a discharge may affect the quality of the water of a downstream state, the upstream state must notify the downstream state. It is not apparent in reading the *Water Quality Certification*, that this procedure has taken place. Please provide some context for any coordination and notification that has occurred between Oregon and California with respect to the issuance of a Water Quality Certification that would affect California water quality.

Condition 2. Water Quality Management Plan

1. Under the list of parameters listed on page 2 of the *Water Quality Certification* - are total suspended sediments (TSS) and total dissolved solids (TDS) both included in suspended sediment concentration requirement? If not, then why aren't TSS and TDS part of the monitoring protocol?

2. Why is ODEQ not requiring monitoring of sediment contaminants such as DDT, DDD and DDE, TCDD along with semi-volatile organic compounds and dioxin-like compounds? These contaminants were shown in the December 2012 Water Quality Support Technical Information to exceed screening limits and ODEQ's Bioaccumulation screening level values (SLVs). This seems especially important since J.C. Boyle sediments have higher chemical concentrations and more chemicals of potential concerns (COPCs) than the other reservoirs. The lists of chemicals in sediment samples from J.C. Boyle that exceed one or more sediment screening levels (Table C-5) and those that

exceed one or more human health sediment screening levels (Table C-6) of the December 2012 Water Quality Support Technical Information are extensive and should not be ignored.

Condition 4. Miscellaneous Measures Protective of Beneficial Uses

1. Under the "Frequency and Duration" subsection on page 24, the condition states that "Fish presence surveys shall be conducted for at least four consecutive years and until otherwise approved or modified by the Deputy Director." This condition should include the parameter(s) by which the Deputy Director would conclude that fish presence surveys are no longer required.

2. J.C. Boyle was originally constructed at the site which was historically known as "Moonshine Falls". This potential natural fish passage barrier should be included in the list on page 4 under 4(a)(iii).

Condition 5. Reservoir Drawdown and Diversion Plan

1. On page 5 under 5(c)(iii), Cultural Resource Discovery should include a site security and protection plan for each discovered site.

2. On page 5 under 6(a), the licensee should be required to develop and implement an Aquatic Invasive Species (AIS) Monitoring and Protection Plan to prevent introduction of any AIS by heavy equipment involved in the removal process both on land and in water.

Condition 6. Reservoir Area Management Plan

1. On page 6 under 6(b)(iii), the Licensee should be required to inspect and remedy physical barriers to fish passage more frequently than once per year since the migratory fish species have different upstream passage windows. At the very least there should be a spring and fall inspection period that occurs well in advance of the known upstream passage windows so that remedies can be implemented prior to the onset of fish migration.

Condition 8. Site Restoration, Erosion and Sediment Control

1. Page 8 under 8(d)(i), it is assumed that there has been some coordination between the Licensee and the U.S. Bureau of Land Management (BLM) regarding the Topsy Campground removal since that facility is owned by the BLM. Please provide some context for coordination between ODEQ and BLM.

2. Page 8 under 8(e), much of the terrain on the downslope side of the J.C. Boyle canal is very steep. It seems negligent to side-cast canal earthen material since much of it will eventually end up in the river reach causing turbidity.

Condition 10. Spill Response

1. Page 10 under 10(a)(vi), equipment operated in state waters should have a manifest showing previous work locations and also be fully inspected for AIS presence prior to use on this project to prevent contamination in the Klamath River.

We look forward to the ODEQ's responses to our comments and inquiries; please feel free to contact Elizabeth Nielsen, Project Coordinator, at (530) 842-8012 or enielsen@co.siskiyou.ca.us. This letter was approved by the Siskiyou County Board of Supervisors on July 17, 2018, by the following vote:

AYES: Supervisors Haupt, Kobseff & Criss
NOES: None
ABSENT: Supervisors Nixon & Valenzuela
ABSTAIN: None

Sincerely,

Ray A. Haupt, Chair
Board of Supervisors

cc: California Water Resources Control Board

APPENDIX C: DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE LOWER KLAMATH PROJECT RELICENSE PROJECT

NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

Paul S. Weiland
D 949.477.7644
pweiland@nossaman.com

VIA EMAIL

February 26, 2019

Ms. Michelle Siebal
State Water Resources Control Board
Division of Water Rights
Water Quality Certification Program
P.O. Box 2000
Sacramento, CA 95812-2000
WR401Program@waterboards.ca.gov

Re: Comments re Draft Environmental Impact Report for the Lower Klamath Project License Surrender, Federal Energy Regulatory Commission Project No. 14803

Dear Ms. Siebal:

On behalf of Siskiyou County ("County"), we are writing to express our significant concerns regarding the Draft Environmental Impact Report ("DEIR") for the Lower Klamath Project License Surrender ("Proposed Project") prepared by the California State Water Resources Control Board ("State Board") pursuant to the California Environmental Quality Act, Cal. Pub. Res. Code, § 21000 *et seq.* ("CEQA"). As the State Board is aware, the Klamath River Renewal Corporation ("KRRC") and PacifiCorp have submitted applications to the Federal Energy Regulatory Commission ("FERC") for hydropower license transfer and surrender. Together, these applications propose to transfer, decommission, and remove four lower Klamath River dams—Iron Gate, Copco I, Copco II, and J.C. Boyle. Three of these dams are located within Siskiyou County. The County has, on multiple occasions, expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as other environmental and societal impacts, including air quality, climate change, cultural resources, hazardous materials, and traffic impacts, in addition to socioeconomic impacts on the local community. *See, e.g., PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 28 (Mar. 15, 2018). Accordingly, the County has a vested interest in ensuring that the public is appropriately and lawfully informed of the consequences of the Proposed Project.

As part of the license surrender process, and pursuant to section 401 of the Clean Water Act, 33 U.S.C. § 1341 *et seq.,* KRRC must also obtain a water quality certification from the State Board. Because the section 401 certification must be based on a finding that the Proposed Project will meet water quality standards and other applicable requirements, the State Board must comply with CEQA. Here, however, the State Board has failed to do so.

As further set forth in the Technical Memorandum attached hereto as Exhibit A, the DEIR fails to satisfy the requirements of CEQA and its implementing guidelines, 14 Cal. Code Regs. §§ 15000 *et seq.* ("CEQA Guidelines"), and therefore fails to provide the public with an adequate assessment of the significant environmental effects associated with implementation of the Proposed Project. The County's concerns include, among other things, the following:

- As the State Board is aware, FERC is required under the National Environmental Policy Act ("NEPA") to prepare an environmental impact statement to evaluate the potential environmental impacts of the Proposed Project. Various provisions of the CEQA Guidelines, as well as NEPA's implementing regulations, state that lead CEQA and NEPA agencies should avoid duplication and jointly prepare one environmental document. Such an approach improves efficiency, preserves public resources, and avoids public confusion and complexity. Here, the State Board's failure to prepare a joint environmental document with FERC is problematic. For example, the fact that FERC has not begun the NEPA process reinforces the uncertain nature of the Proposed Project description (also discussed below). Likewise, having two documents with multiple alternatives makes the Proposed Project unnecessarily complex and risks causing unneeded public confusion. Thus, the County requests that the State Board issue a revised DEIR prepared in coordination with FERC.

- The State Board has improperly failed to consult with responsible agencies and other local agencies that exercise authority of the resources that will be affected by the Proposed Project. *See* Cal. Pub. Res. Code § 21104; 14 Cal. Code Regs. § 15086(a). Specifically, the State Board has taken the position that the County is not a responsible agency because the County's local permitting requirements will be preempted by federal law. This determination is improperly premature. Not only has FERC required compliance with all local permitting requirements in other dam removal contexts, *Arizona Public Service Co.*, 109 FERC ¶ 61,036 (2004); *Wisconsin Electric Power Co.*, 94 FERC ¶ 61,038 (2001), but this is a determination to be made by FERC—not the State Board. In addition, FERC has made it clear that KRRC must comply with state and local laws to the extent practicable. *E.g.,* Definite Plan at 38, citing *PacifiCorp,* 115 FERC ¶ 61,194 (2006) ("We prefer for our licensees to be good citizens of the communities in which projects are located, and thus to comply with state and local requirements, where possible.") Unless and until FERC makes a determination regarding preemption, it is improper for the State Board to assume that the County is not a responsible agency under CEQA.

- The purpose and objectives of the Proposed Project are improperly narrow. More specifically, the purpose and objectives foreclose meaningful consideration of alternatives that should properly be considered under CEQA. For example, the objective to "[r]estore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams" is narrower than, and not justified by, the project purpose (i.e., improving water quality and upstream access). This objective essentially preselects the preferred alternative—dam removal—thereby precluding consideration of other alternatives that could significantly improve fish passage and survival (e.g., trap and haul, or other means of assisted migration). Likewise, the purpose and objectives improperly focus

exclusively on improving "anadromous fish passage." This ignores the fact that multiple other non-anadromous species inhabit the Proposed Project area, including imperiled shortnose and Lost River suckers. It is improper for the purpose and objectives to be defined so narrowly as to exclude consideration of alternatives that would benefit other Klamath Basin aquatic species.

- The Proposed Project is improperly defined. Specifically, the DEIR defines the Proposed Project as the project set forth in the Definite Plan for the Lower Klamath Project ("Definite Plan") that was submitted to FERC in June 2018. As the State Board is aware, the Definite Plan is currently under review by FERC, and has not been deemed technically or financially feasible. Furthermore, KRRC has indicated that the Definite Plan will be revised and reissued in April 2019. *See* http://www.klamathrenewal.org/wp-content/uploads/2018/12/2018-12-12-Letter-Report-BOC-Mtg-No-1.pdf; *see also* November 2018 Comments from Siskiyou County re Definite Plan (attached hereto as Exhibit B). The State Board's use of a tentative, yet-to-be-vetted project as the Proposed Project is contrary to CEQA. *See Washoe Meadows Community v. Department of Parks and Recreation,* 17 Cal.App.5th 277 (Cal. Ct. App. 2017).

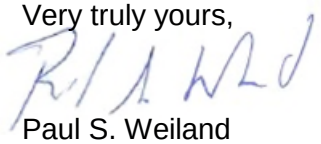
- Throughout the DEIR, the State Board refers to "measures that would not be considered feasible for the purposes of CEQA because the SWRCB cannot ensure that they would occur." The State Board's approach with respect to these measures is improper. Where mitigation measures can be devised consistent with CEQA, the State Board cannot lawfully shirk its responsibility to identify such measures and require compliance with them in order to reduce impacts to less than significant. Importantly, "a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance." *Oakland Heritage Alliance v. City of Oaklan*d, 195 Cal. App. 4th 884, 906 (Cal. Ct. App. 2011), cited in *Center for Biological Diversity v. Department of Fish & Wildlife*, 234 Cal. App. 4th 214, 246 (Cal Ct. App. 2015). It is reasonable to expect compliance with, for example, the federal Endangered Species Act, pertinent provisions of the California Fish and Game Code, and other federal and state laws. Therefore, the State Board should revise the DEIR to incorporate mitigation measures (rather than recommended measures) wherever possible.

- The State Board acknowledges that the Proposed Project will result in exceedances of air quality thresholds established by the Siskiyou County Air Pollution Control District ("SCAPCD"), including with respect to NO_X, PM_{10}, and $PM_{2.5}$. DEIR at 3-703, citing SCAPCD Rule 6.1, Construction Permit Standards for Criteria Pollutants. The State Board further concludes that, based on those exceedances, construction emissions for the Proposed Project would be significant. *Id.* In Section 2.8 of the Project Description, however, the State Board has not identified SCAPCD as a responsible agency that will rely on the DEIR for permitting or other regulatory purposes. *See, e.g.,* SCAPCD Rule 2.1(A), Permits Required. This contravenes CEQA Guidelines section 15124, subdivision (d). The State Board should revise the DEIR to properly comply with this requirement.

- The DEIR's analysis of greenhouse gas emissions is inadequate. For example, the impact analysis indicates that emissions have not been quantified since the 2012 EIR/EIS, despite significant changes to the Proposed Project. The State Board should either perform a new analysis to quantify emissions or explain why it has not performed such an analysis. *See Cleveland Nat'l Forest Found. v. San Diego Assn. of Governments*, 3 Cal. 5th 497, 515-516 (Cal. Ct. App. 2017). Furthermore, the DEIR's 10,000 MT threshold of significance is contrary to recent court decisions holding that, without an analysis explaining why the data is relevant to a particular project, reliance on statewide data or other regional data to prepare significance thresholds is improper. *E.g., Golden Door Properties, LLC v. Cty. of San Diego*, 27 Cal. App. 5th 892 (Cal. Ct. App. 2018); *Ctr. for Biological Diversity v. Dep't of Fish & Wildlife*, 62 Cal. 4th 204 (Cal. 2015). Thus, at a minimum, the State Board should revise the DEIR to include an additional analysis demonstrating why the data that it used is relevant to the Proposed Project, including with respect to both its type and location. *Id.; see also* DEIR at 3-720. Moreover, because of the burden and risk associated with tailoring thresholds to particular projects, many local agencies have instead adopted a net zero threshold. *See, e.g.,* Newhall Ranch Project, https://netzeronewhall.com/. This is also the approach recommended by the California Air Resources Board. *See, e.g.,* https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf at 101. The County encourages the State Board adopt a net zero threshold for the Proposed Project. In any event, the County reaffirms its position that the DEIR must include mitigation measures to reduce air quality impacts to less than significant rather than simply allowing KRRC to endanger public health by proceeding with an action that has unmitigated, significant air quality impacts.

For the foregoing reasons, and as further set forth in detail in Exhibit A, the County requests that the State Board revise the DEIR to address the County's concerns. Please do not hesitate to contact us with questions.

Very truly yours,



Paul S. Weiland
Nossaman LLP

Attachments

cc: Jason Funes, Special Assistant, Department of the Interior
Wade Crowfoot, Secretary, California Natural Resources Agency
Charlton "Chuck" Bonham, Director, California Department of Fish and Wildlife
Tom Gibson, Undersecretary, California Department of Natural Resources
Assemblyman Brian Dahle
Congressman Doug LaMalfa
Congressman Jared Huffman
Congressman Greg Walden
Special Assistant Alan Mikkelsen, FERC

EXHIBIT “A”

LOWER KLAMATH DAM REMOVAL DRAFT ENVIRONMENTAL IMPACT REPORT COMMENTS

National Environmental Policy Act Lead Agency

Section 1.1 of the Draft Environmental Impact Report (DEIR) states that the Klamath River Renewal Corporation (KRRC) has applied to the Federal Energy Regulatory Commission (FERC) to decommission and remove the four Lower Klamath Project dams (Proposed Project). Section 1.1 further states that FERC is the federal lead agency that licenses the construction, operation, and decommissioning of most hydroelectric dams in the United States.

The National Environmental Policy Act (NEPA) applies to projects that are carried out, financed, or approved in whole or in part by federal agencies; therefore, FERC must prepare an Environmental Impact Statement (EIS) prior to taking action with respect to the Proposed Project. California Environmental Quality Act (CEQA) Guidelines Section 15006, Reducing Delay and Paperwork, states that lead agencies should eliminate duplication with federal procedures by providing for joint preparation of environmental documents with federal agencies and by adopting documents prepared in fulfillment of NEPA and its implementing regulations. In addition, **CEQA Guidelines Section 15222, Preparation of Joint Documents, states that a lead agency should try to combine an Environmental Impact Report (EIR)/EIS to avoid the need for the federal agency to prepare a separate document for the same project.** According to CEQA Guidelines Section 15222 this involvement is necessary because federal law generally prohibits a federal agency from using an EIR prepared by a state agency unless the federal agency was involved in the preparation of the document. Furthermore, **Council on Environmental Quality (CEQ) NEPA Regulations encourage cooperation with state and local agencies in an effort to reduce duplication in the NEPA process (40 Code of Federal Regulations [C.F.R.] § 1506.2).** The CEQ NEPA regulations state that cooperation shall include joint planning processes, joint environmental research and studies, joint public hearings, and joint environmental assessments (*Id.* § 1506.2(b)(1-4)).

The State Water Resources Control Board (SWRCB) has prepared the Lower Klamath Project License Surrender Project DEIR without following the legislative intent of CEQA, CEQA Guidelines, and CEQ NEPA regulations. The SWRCB has created undue confusion and complexity for the public, local agencies, and other state and federal agencies involved in reviewing the project by initiating two separate, duplicative environmental review processes. Thus, it's recommended that the SWRCB issue a revised DEIR in coordinating with FERC.

Although the County clearly outlines the need for a revised EIR, it is important to note that due to SWRCB's failure to follow the process outlined above the potential for future amendments to

the DEIR, requiring recirculation, results in financial hardship to economically stressed stakeholders and local agencies, such as Siskiyou County, who will be obligated to expend further limited resources to review and respond to the new documents the SWRCB circulates. Had the SWRCB followed typical and acceptable procedural steps in developing this DEIR, there would have been a significant decrease in the financial strain experienced by affected stakeholders and local agencies, including Siskiyou County.

Responsible Agencies

Under Public Resources Code section 21104, "[p]rior to completing an environmental impact report, the state lead agency shall consult with, and obtain comments from, each responsible agency, trustee agency, any public agency that has jurisdiction by law with respect to the project, and any city or county that borders on a city or county within which the project is located unless otherwise designated annually by agreement between the state lead agency and the city or county, and may consult with any person who has special expertise with respect to any environmental impact involved." Under 14 California Code of Regulations (CCR) § 15086(a), the lead agency "shall consult with and request comments…from" responsible agencies and other local agencies that exercise authority over resources that may be affected by the project, and "may consultant directly with: (1) Any person who has special expertise with respect to any environmental impact involved, (2) Any member of the public who has filed a written request for notice with the lead agency or the clerk of the governing body." Here, SWRCB has taken the position that Siskiyou County is not a Responsible Agency because FERC will preempt all of Siskiyou County's local permitting requirements. However, FERC has, in some dam removal cases, required licensees to obtain **all** local permits. *See Arizona Public Service Co.*, 109 FERC 61,036 (2004), and *Wisconsin Electric Power Co.*, 94 FERC 61,038 (2001). As FERC has explained to PacifiCorp in the past, "federal preemption does not necessarily mean that the Commission will not elect to require PacifiCorp to comply with those of the Counties' requirements that the Commission concludes will not interfere with the company's ability to carry out the Commission's orders"; rather, "[i]t only establishes that it is within the Commission's sole discretion to determine the extent to which such compliance will be required." (PacifiCorp Project No. 2342-18; Order available at: https://www.ferc.gov/whats-new/comm-meet/051806/H-2.pdf.) Given that counties may be permitted to exert regulatory authority to the extent its regulations do not make compliance with FERC orders impossible or unduly difficult, and given that FERC prefers licensees to be good citizens of the communities in which projects are located, and thus to comply with all local requirements, where possible, the SWRCB is in error in not consulting with the County as a Responsible Agency so that the EIR would be useful for its purposes as well.

Project Purpose and Objectives

Section 2.1 of the DEIR, Project Purpose and Objectives, outlines the SWRCB identified objectives of the Proposed Project as well as the underlying purpose. The purpose is "timely

improving water quality related to the Lower Klamath Project within and downstream of the current Hydroelectric Reach and restoring anadromous access upstream of Iron Gate Dam." This purpose is unduly narrow. It appears the SWRCB and KRRC have conflated the underlying purpose, objectives, and Proposed Project. This is contrary to CEQA. *North Coast Rivers Alliance, et al. v. A.G. Kawamura/Our Children's Earth Foundation, et al. v. California Department of Food and Agriculture* (2015) 243 Cal.App.4th 647 (opining that failing to properly distinguish between the project purpose, project objectives, and project violates CEQA).

The four project objectives outline improvements to water quality and fish populations, but **notably absent are considerations by the lead agency of any consideration of the potential benefits for and costs to local communities, including but not limited to agricultural and ranching interests.** The SWRCB should consider the interest of the citizens of Siskiyou County in their project objectives.

Furthermore, the objective to "Restore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams" is narrower than, and not justified by, the project purpose (improving water quality and upstream access). This objective can be used to justify dam removal over any other alternative including trap and haul or other means of assisted migration. Restoring volitional anadromous fish passage rather than conserving wild salmonid populations, for example, gives the appearance of purposefully manipulating the objectives in order to identify the applicant's long-preferred alternative of dam removal as the preferred alternative.

Proposed Project

Section 2.7 of the DEIR, Proposed Project, states that the Detailed Plan and Definite Plan constitute the applicant's Proposed Project. As the SWRCB is aware, the Definite Plan is currently being reviewed by FERC and the Independent Board of Consultants for technical adequacy. In fact, the project proponent has committed to revise the Definite Plan, issuing a new document in April 2019. *See* http://www.klamathrenewal.org/wp-content/uploads/2018/12/2018-12-12-Letter-Report-BOC-Mtg-No-1.pdf. **According to Washoe Meadows Community v. Department of Parks and Recreation (2017) 17 Cal.App.5th 277, an EIR must contain an "accurate, stable, and finite" project description.** Given the potential changes to the Proposed Project as a result of the commitment to issue revised documents, additional pending review and subsequent comments, using the draft plan as a basis for the project description and baseline for analysis is inadequate. Further, as FERC is the lead federal agency for the project, SWRCB should wait for their input on the Definite Plan before having forged ahead on the DEIR (CEQA Guidelines 15223). SWRCB's release of the DEIR precluded FERC's ability to review and comment on the project itself.

Section 2.7.8 of the DEIR, Project Component, summarizes project components outside of the major dam and powerhouse deconstruction. These components primarily address environmental, safety, and quality of life issues and are outlined in the appendices to the Definite Plan. Siskiyou

County has provided substantive comments on the Definite Plan (and appendices). **As these components are instrumental in the mitigation of environmental impacts, please ensure that our comments are addressed in subsequent drafts of these essential components of the Proposed Project.**

Description of Environmental Setting

Section 15126.4(a) of the CEQA Guidelines states "(a) An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

There are many sections in the DEIR that rely on future surveys or studies to be prepared to identify resources or habitats that may be present in the project impact area. Without quality data that allow for an assessment of baseline conditions of resources within the project area, the impact analysis is unreliable. The impacts of a Proposed Project must be evaluated by comparing expected environmental conditions after project implementation to conditions at a point in time referred to as the baseline. The changes in environmental conditions between those two scenarios represent the environmental impacts of the Proposed Project. The adequacy of a document's baseline is a factual issue to be determined based on whether there is substantial evidence in the record supporting the agency's determination.

Baseline is not a policy choice to be made at the end of CEQA Review (*Save Our Peninsula Committee v. Monterey County* (2001) 87. Cal. App. 4th 99). For a new project, courts have required that the baseline reflect actual existing physical conditions at the start of environmental review. The DEIR relies on future surveys and studies to identify wetlands, special-status plants, culturally significant resources, special-status wildlife, groundwater wells, and other affected resources. The impact determination directly correlates to the existing or baseline conditions. If those conditions are unknown then making a determination of significance is not possible or reliable. The SWRCB has abdicated its responsibility in providing quality data regarding the baseline/existing conditions so that realistic and accurate impact determinations can be made. We have noted specifically in Table 1, below, where individual resource topics do not have the adequate environmental setting information to make an informed impact analysis.

Mitigation Measures Proposed to Mitigate Significant Impacts

Section 15126.4(a) of the CEQA Guidelines states:

> (1) An EIR shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy.

(A) The discussion of mitigation measures shall distinguish between the **measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project.**

(B) This discussion shall identify mitigation measures for each significant environmental effect identified in the EIR.

(2) **Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments.** In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.

Throughout the DEIR, the SWRCB refers to "measures that would not be considered feasible for the purposes of CEQA because the SWRCB cannot ensure that they would occur." In these cases, recommended measures are provided that would reduce potential impacts if implemented by KRRC. However, the impact analysis herein cannot rely on the implementation of these measures. In many of these cases the DEIR concludes that a significant and unavoidable impact would result. It is unclear why the SWRCB has taken this position with so many of the impacts. The excerpt below is from pages ES-9–ES-15.

"[T]he determination of whether a project will have significant environmental impacts, and the formulation of measures to mitigate those impacts, *must* occur before the project is approved." *California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 621. Here, the SWRCB has failed to formulate mitigation measures, arguing time and again, it is not feasible to do so. For example, with respect to terrestrial resources, the SWRCB states: "implementation of terrestrial resources measures would be not be considered feasible for the purposes of CEQA because the State Water Board cannot ensure that they would occur. In these cases, recommended measures are provided that would reduce potential impacts if implemented by KRRC" (DEIR, p. 3-516). Where mitigation measures can be devised consistent with CEQA Guidelines Section 15126.4, the SWRCB cannot lawfully shirk its responsibility to identify such measures and require compliance with them in order to reduce impacts to less than significant. Importantly, "a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance." *Oakland Heritage Alliance v. City of Oaklan*d (2011) 195 Cal. App. 4th 884, 906 cited in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal. App. 4th 214, 246. It is reasonable to expect compliance with the federal Endangered Species Act, pertinent provisions of the Fish and Game Code, and other federal and state laws. Therefore, the SWRCB must revise the DEIR to incorporate mitigation measures rather than recommended measures wherever

possible. In those circumstances where the SWRCB believes it is not possible, it must comply with CEQA Guidelines Section 15126.4(a)(5) by explaining the reasoning for its determination. Simply reciting the conclusory claim that there are no feasible mitigation measures does not suffice. "The failure to provide enough information to permit informed decision-making is fatal." *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal. App. 4th 342, 361. Furthermore, in those circumstances where the SWRCB proposed recommended measures, consistent with Public Resources Code section 21081(a)(2), the SWRCB should clearly identify other public agencies that have the responsibility and jurisdiction to require implementation of those recommended measures.

Summary of Proposed Project Effects, Potential Impacts, and Potential Cumulative Impacts

The Executive Summary to the DEIR states:

> Below is a summary, by resource area, of impacts found to be 'significant and unavoidable' with or without mitigation (Table ES-1). Please note, the KRRC proposes to further develop Proposed Project actions relating to certain state and local regulatory requirements for several resource areas that fall outside of State Water Board's water quality certification authority. The State Water Board anticipates implementation of additional measures (e.g., good neighbor agreements between the KRRC and relevant state or local agencies, recommended measures in this EIR, and any modifications developed through the FERC process that provide the same or better level of protection for the resource in question) would reduce impacts. The EIR notes where such protection would eliminate the potential for a significant impact. However, the State Water Board cannot ensure implementation of good neighbor agreements, recommended measures included in this EIR, or modifications anticipated to be developed through the FERC process. Therefore, the State Water Board has identified impacts that rely on implementation of such agreements or recommended measures in this EIR as significant and unavoidable.

DEIR at ES-11.

This section included significant and unavoidable impacts on the following resources: Water Quality, Aquatic Resources, Phytoplankton and Periphyton, Terrestrial Resources, Flood Hydrology, Air Quality, Historical Resources and Tribal Cultural Resources, Public Services, Aesthetics, Recreation, Hazards and Hazardous Substances, Transportation and Traffic, and Noise. Most of the resource areas also included recommended mitigation measures that the SWRCB states are not enforceable and therefore cannot be relied upon. In some cases the recommended measures are under the purview of other state or federal agencies that may require those measures through their permits or consultations that must be completed as part of the project permitting process and **that may be enforceable by the permitting agency** (e.g.

California Department of Fish and Wildlife [CDFW] for special-status terrestrial species and rare natural communities or state-listed species; U.S. Fish and Wildlife Service [USFWS] and/or National Marine Fisheries Service [NMFS] for federally listed species, etc.).

The DEIR does not rely on other trustee or lead agency authority in cases where it reasonably could to ensure that these measures would be implemented to reduce impacts to less than significant. Part A of the above statute clearly indicates that "mitigation measures shall distinguish between" (1) "measures which are proposed by project proponents to be included in the project," and (2) "**other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project**."

The SWRCB asserts its authority to enforce or require mitigation for certain resources. As an example, the DEIR asserts that it has jurisdiction over wetlands and waterways and can enforce that mitigation, therefore concluding that it can imposed mitigation measures to mitigate effects to reptiles and amphibians so that they are less than significant (based on Mitigation Measure TER-2 − Amphibian and Reptile Management). This measure, just as any terrestrial mitigation measure, will require approval by CDFW and normally would be included in a Streambed Alteration Agreement (SAA) and, in the event any reptiles are listed as threatened or endangered, in a California Endangered Species Act (CESA) permit.

The SWRCB has interpreted law with respect to CEQA to provide that any required mitigation measures would have to be fully enforceable through SWRCB permit conditions. Therefore, where mitigation cannot be enforced by SWRCB under its non-CEQA authorities, such as the Porter Cologne Water Quality Control Act, the SWRCB must make significant and unavoidable impact determinations rather than identifying mitigation to mitigate effects to less than significant. The SWRCB goes on in these significant and unavoidable impact determinations to refer to "recommended measures" that if implemented would reduce impacts to less than significant. In many cases these measures would be reasonably expected to be conditions of approving the project by another trustee or responsible agency. One such example is CDFW through their responsibilities under Lake and Streambed Alteration Program.
Section 1600 of the Fish and Game Code states:

The Legislature finds and declares that the protection and conservation of the fish and wildlife resources of this state are of utmost public interest. Fish and wildlife are the property of the people and provide a major contribution to the economy of the state, as well as providing a significant part of the people's food supply; therefore their conservation is a proper responsibility of the state.

The Lake and Streambed Alteration Program establishes a regulatory scheme to protect and conserve fish and wildlife resources, and the habitats upon which they depend. **This includes notification to CDFW and a procedure to reach agreement with CDFW.** This regulatory

program codifies CDFW's responsibility to protect public trust resources. The SWRCB, being a state agency likewise charged with protection of public trust resources, is responsible to ensure that conservation of fish and wildlife is part of any project it authorizes or acts as lead agency with respect to under CEQA. Because CDFW and the SWRCB are both state agencies, the EIR should require mitigation measures that avoid violation of state laws. The Water Board cannot simply determine that impacts are significant and unavoidable in violation of state law.
The DEIR also includes significant and unavoidable impact determinations for several federally listed species using the same reasoning that SWRCB cannot enforce mitigation measures outside the water quality certification conditions. However, the significant and unavoidable impacts that would result from the Proposed Project to listed species (including Bald and Golden Eagle Protection Act [BGEPA] species) without USFWS consultation and approved avoidance, minimization and mitigation would be in violation of the ESA. Because the project will require both a U.S. Army Corps of Engineers (USACE) Section 404 permit and FERC surrender license, there is a federal nexus and both will require a Section 7 consultation with the USFWS. The SWRCB analysis should require:

- implementation of Recommended Terrestrial Measures 3–12,
- acquisition of an SAA from CDFW, and
- consultation with the USFWS to secure a Biological Opinion or Letter of Concurrence to avoid violation of state and federal law.

Section 15126.2 of the CEQA Guidelines states:

(a) The Significant Environmental Effects of the Proposed Project. An EIR shall identify and focus on the significant environmental effects of the Proposed Project on the environment. In assessing the impact of a Proposed Project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. **Direct and indirect significant effects of the project on the environment shall be clearly identified and described**, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), **health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services.** The EIR shall also analyze any significant environmental effects the project might cause or risk exacerbating by bringing development and people into the area affected. For example**, the EIR should evaluate any potentially significant direct, indirect, or cumulative environmental**

impacts of locating development in areas susceptible to hazardous conditions (e.g., floodplains, coastlines, wildfire risk areas), including both short-term and long-term conditions, as identified in authoritative hazard maps, risk assessments or in land use plans, addressing such hazards areas.

Table 1 below identifies places in the DEIR where it could be reasonably expected that another trustee or responsible agency could be relied upon to not only require, but enforce such measures.

Table 1. Environmental Resource Comments and Inconsistencies with the CEQA Statute and Other Issues

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
DEIR SECTION: WATER QUALITY			
3.2 Water Quality			
Data relied upon for the water quality analysis is too old to adequately assess existing conditions of the project area. The information relating to total phosphorus, total nitrogen, dissolved oxygen, pH, inorganic and organic matter, sediment contaminants, and aquatic biota contaminants is all over ten years old and does not represent the current environment, particularly given alterations in climate and surrounding land uses.			
3.2.5.1 Water Temperature			
The Klamath River Water Quality Model (KRWQM) includes the assumption that all waters that enter the state of California are fully compliant with applicable Total Maximum Daily Loads (TMDLs). That is, the model assumes that reservoir conditions and waters that flow into California meet all water quality standards for water temperature, organic enrichment/dissolved oxygen, nutrients, pH and microsystins. As such, the effects of dam removal on the TMDL target constituents are underestimated, since it's likely that the TMDLs will not be being met upstream. The DEIR then states: "dam removal would rapidly and substantially move the Hydroelectric Reach towards achieving California TMDL Compliance." This is disingenuous, as it relies heavily on the improper and unsupported assumption that waters entering California will be TMDL-compliant. It also ignores the short term effects and the consequence of sending a huge, contaminated debris flow that will end up downstream of the Hydroelectric Reach, the Klamath River estuary, and the Pacific Ocean. The DEIR should analyze water quality constituents without assuming TMDL compliance upstream.			The KRWQM model notes that removal of the dams would increase water temperatures in the spring, with climate change possibly resulting in a 1.8˚F to 5.4˚F increase in water temperatures. With increases in temperatures between 1.8˚F to 5.4˚F, conditions for spring spawners and adult/juvenile migration would potentially be worse than with the dams in place, as the dams are able to release deeper, cold water during the spring and summer months. Also, for the Middle and Lower Klamath, Estuary, and Pacific Nearshore environment, the KRWQM predicts warmer water during April through August (migration/spring spawning) and warmer (4–18˚F) water during August through November (fall spawning time). The DEIR should consider the negative effects of warmer water on migrating and spawning salmonids.
DEIR SECTION: AQUATIC RESOURCES			
3.3.2.1 Fish Species, Green Sturgeon			
			If barriers are removed to allow upstream access by *Oncorhynchus. mykiss irideus* (steelhead), the potential effects of this subspecies on *O. mykiss newberrii,* and vice versa, needs to be analyzed in the DEIR. Hatcheries have had a large influence on the genetic structure of salmonids in the basin, and thought should be given to how restoring upstream passage may affect the resident trout population. - "In addition, non-native stocks of *O.*

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
			mykiss have been widely planted in the basin, and large hatcheries exist on both the Klamath (Iron Gate Hatchery) and Trinity (Trinity River Hatchery) rivers. The extent of their genetic impact on wild, naturally-spawning, *O. mykiss* is not known."(Pearse et al 2007)
3.3.2.1 Fish Species, Lost River and Shortnose Sucker			
California Fish and Game Code 2081.11 states that "(a) The department may authorize, under this chapter, the take or possession of the Lost River sucker (*Deltistes luxatus*) and shortnose sucker (*Chasmistes brevirostris*) resulting from impacts attributable to or otherwise related to the decommissioning and removal of the Iron Gate Dam, Copco 1 Dam, Copco 2 Dam, or J.C. Boyle Dam, consistent with the Klamath Hydroelectric Settlement Agreement, if all of the following conditions are met: - (1) The department determines the authorized take will not jeopardize the continued existence of the Lost River sucker or shortnose sucker. - (2) The impacts of the authorized take are minimized. - (3) The take authorization provides for the development and implementation of an adaptive management plan, approved by the department, for monitoring the effectiveness of, and adjusting as necessary, the measures to minimize the impacts of the authorized take. - (b) This section shall not be construed to exempt the project described in subdivision (a) from any other law." Most work with these species is centered on their status in Upper Klamath Lake and the tributaries that feed the lake. There is no recent information presented addressing the status of the population in the downstream reservoirs. The KRRC cites work conducted by Desjardins and Markle (2000), which was approximately 20 years ago. Desjardins and Markle (2000) indicated that further studies were needed to investigate recruitment of adults and juveniles. Therefore, there is a data gap on the current status of these species in these downstream reservoirs. If adequate recruitment to spawning age is an issue in both the Upper Klamath Lake and downstream areas, it is improper to sacrifice the downstream population as a	In the DEIR, the Resident Fish Panel Expert states that the Upper Klamath Lake populations are self-sustaining. However, both reports from the USGS on adult (Hewitt et al 2018) and juvenile status (Burdick et al. 2018) indicate inadequate numbers of new spawning recruits. Therefore, the Panel's findings are inconsistent with current science on the Lost River and shortnose Suckers. This inconsistency should be acknowledged and discussed.		If the USFWS or other agencies are worried about hybridization of Klamath smallscale suckers (*Catostomus rimiculus*) with the other sucker species, as detailed in the 2013 Biological Opinion (USFWS 2013), removal of barriers such as J.C. Boyle Dam could allow access of Klamath smallscale suckers to migrate upstream where Lost River and Shortnose suckers more commonly occur. This could potentially increase incidences of hybridization. This is further stated as a concern by Buettner et al. (2006) and others to caution against supporting migration of individuals from Iron Gate and Copco Reservoirs into the Upper Klamath Lake population.

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
"sink population" without adequately understanding and describing the justification (i.e., genetics, current population structure). As stated in the U.S. Geological Survey (USGS) Report (Hewitt et al 2018), "Despite relatively high survival in most years, we conclude that both species have experienced substantial decreases in the abundance of spawning adults because losses from mortality have not been balanced by recruitment of new individuals." Furthermore, this position is reflected in another USGS Report (Burdick et al. 2018), which states: "Upper Klamath Lake populations are decreasing because adult mortality, which is relatively low, is not being balanced by recruitment of young adult suckers into known spawning aggregations. Most Upper Klamath Lake juvenile sucker mortality appears to occur within the first year of life."			
3.3.2.2 Physical Habitat Descriptions, Shortnose Sucker and Lost River Sucker			
The USFWS logic in the 2013 Revised Recovery Plan to not include the downstream reservoirs, downstream of Keno Dam, under Critical Habitat designation for the Lost River Sucker and Shortnose Sucker are based on Primary Constituent Elements. However, data on the population status of the Lost River Sucker and Shortnose Sucker should be updated prior to assuming the sucker populations downstream of Keno Dam are part of a sink population. During sampling in 1998 and 1999, Desjardins and Markle (2000) found all developmental stages of Shortnose Sucker at J.C. Boyle and Copco Dams. The downstream reservoirs, while artificially created, currently provide some level of habitat for these sucker species. In a Joint Press Release dated February 20, 2014 between the USFWS and PacifiCorp (USFWS and PacifiCorp 2014), it is stated that "the majority of remaining affected suckers are not part of reproducing populations since they reside in downstream reservoirs, which are outside of their historic range." While these suckers may not have been present in these areas prior to dam installation, the installation of dams and the associated reservoirs now provide some level of habitat for these ESA sucker species.			
Potential Impact 3.3-4 Effects on Chinook and coho salmon Essential Fish Habitat (EFH) quality and quantity due to short-term sediment releases and long-term changes in habitat quality and quantity due to dam removal.			
	Similar to Impact 3.3-1, the DEIR concludes that there is no significant impact to EFH with implementation of AQR-1 and AQR-2. However, these mitigation measures (MMs) are directed at species rather than EFH. The impact to EFH occurs even with implementation of mitigation and should be considered significant.	The SWRCB relies on Mitigation Measure AQR-1 – Mainstem Spawning, and Mitigation Measure AQR-2 – Juvenile Outmigration, to reduce impacts to coho critical habitat to less than significant. These measures reduce impacts to the species. Also, the question remains as to why the SWRCB believes that the salvaging and relocation of a listed species that is both	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
		federally and state-listed as threatened (under the purview of NMFS and CDFW) is enforceable as part of the Water Quality Certification conditions but cannot do the same for other species or habitats (e.g. terrestrial special-status plants or species).	
Potential Impact 3.3-4 Effects on Chinook and coho salmon Essential Fish Habitat (EFH) quality and quantity due to short-term sediment releases and long-term changes in habitat quality and quantity due to dam removal.			
	Similar to Impact 3.3-1, the DEIR concludes that there is no significant impact to EFH with implementation of AQR-1 and AQR-2. However, these mitigation measures (MMs) are directed at species rather than EFH. The impact to EFH occurs even with implementation of mitigation and should be considered significant.	The SWRCB relies on Mitigation Measure AQR-1 – Mainstem Spawning, and Mitigation Measure AQR-2 – Juvenile Outmigration, to reduce impacts to coho critical habitat to less than significant. These measures reduce impacts to the species, and not the critical habitat.	
3.3.5.4. Water Temperature, Middle and Lower Klamath River			
The DEIR states that "cool groundwater spring inputs in the Williamson River and the south side of Upper Klamath Lake would likely provide thermal refugia for the non-migratory juvenile salmonid rearing life stages." However, this statement overlooks the fact that juveniles will be forced into crowded conditions with many other species of native and non-native fishes and these crowded conditions would likely increase the potential for disease outbreaks. Furthermore, these spring inputs should be counted, identified, and quantified in a way that substantiates this conclusion.	The statement regarding young salmon having the option to feed at night when water temperatures are cooler fails to recognize that the primary feeding times for juveniles is the crepuscular hours and they do not typically feed at night because of low light visibility (Schabetzberger, et al. 2003). Young salmon, not being able to consume adequate amounts of food on a daily basis, will compromise their ability to be fit for migration to the ocean and still experience average survival rates. This data is not taken into account and would conflict with the Proposed Project's purported benefits to salmonids due to reductions in minimum daily temperatures.		
3.3.5.9 Aquatic Resource Impacts. Potential Impact 3.3-1 Effects on coho salmon critical habitat quality and quantity due to short-term sediment releases and long-term changes in habitat quality and quantity due to dam removal.			
	Significant impacts associated with critical habitat are related to potential effects or impairment of the Primary Constituent Elements (PCEs) within the Action Area of the Proposed Project. The impact determination on critical habitat PCEs includes salvaging and relocating fish. Yet, the DEIR states that the Proposed Project would have no significant impact on coho salmon critical habitat in the short term. This is not accurate.	The SWRCB relies on Mitigation Measure AQR-1 – Mainstem Spawning, and Mitigation Measure AQR-2 – Juvenile Outmigration, to reduce impacts to coho critical habitat to less than significant. These measures reduce impacts to the species. Also, the question remains as to why the SWRCB believes that the salvaging and relocation of a listed species that is both federally and state-listed as threatened (under the purview of NMFS and CDFW) is enforceable as part of the Water Quality Certification conditions but cannot do the same for other species or habitats (e.g. terrestrial special-status plants or species).	
Potential Impact 3.3-7 Effects on the fall-run Chinook salmon population due to short-term sediment releases and long-term changes in habitat quality, habitat quantity, and hatchery operations due to dam removal.			
	Dam removal and fish passage projects in Washington are used as examples of "rapid recolonization" following implementation. These examples are inapposite to the Proposed Project, however, because they included good water quality as a baseline condition. That is not the case here. To the contrary, it is unlikely the Klamath River will ever achieve the level		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	of water quality that was achieved in those sample projects. This was recognized by the Chinook Salmon Expert Panel (page 3-301): "While the Chinook Salmon Expert Panel agreed that there was also evidence that potential dramatic increases in abundance associated with potential fish passage upstream of Keno Dam as well, they cautioned that achieving substantial gains in Chinook salmon abundance and distribution in the Klamath Basin is contingent upon successfully resolving key factors that would continue to affect the population, including water quality in Upper Klamath Lake and Keno Reservoir, disease, colonization of the Upper Klamath River Basin, harvest and escapement, hatchery interactions, predation by resident fish, climate change, instream flows, and impacts from dam removal."		
Potential Impact 3.3-8 Effects on the spring-run Chinook salmon population due to short-term sediment releases and long-term changes in habitat quality, habitat quantity, and hatchery operations due to dam removal.			
On February 8, 2019, the California Fish and Game Commission declared a finding of emergency and statement of proposed emergency regulation relating to the Upper Klamath-Trinity Spring Chinook Salmon. The proposed emergency regulations will make the Klamath River Basin Spring Chinook Salmon a candidate species under the California Endangered Species Act receiving full take protection while the Department of Fish and Wildlife considers a 'threatened' or 'endangered' listing. **The DEIR should provide an update to the environmental setting and impact analysis assuming the spring-run Chinook Salmon would be listed under the California Endangered Species Act and provide any mitigation to limit impacts per presumed compliance with an Incidental Take Permit (California Fish and Game Code Section 2081).**			
Potential Impact 3.3-19 Effects on freshwater mollusks populations due to short-term sediment releases and long-term changes in habitat quality due to dam removal.			
	Citing other Klamath River documents, the authors of the DEIR accepts the statement that clams live in buried sediment and therefore are not affected by the sediment loads that will inundate the Klamath River bed. However, studies have shown that organisms like the razor clam can only tolerate single events of additional sediment (12 cm or less) for a short period (Vavrinec, et al. 2007) and events that introduce more than 26 cm of sediment over the top of an existing clam bed can result in greater than 70 percent mortality.		
DEIR SECTION: TERRESTRIAL RESOURCES			
3.5.5.1 Vegetation Communities. Potential Impact 3.5-1 Construction-related impacts on wetland and riparian vegetation communities.			
Absent a wetland delineation, impacts to wetlands are	Potential Impact 3.5-1 is related to construction	Mitigation Measure TER-1 provides buffers for avoiding	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
unknown, avoidance cannot be assured and therefore impacts cannot be quantified.	impacts however, the text goes back and forth between long- and short-term impacts and it is difficult to decipher what is being analyzed as an effect in this section. Discussing the Reservoir Area Management Plan and no net loss of wetlands in a construction impact is confusing.	existing wetlands during construction. It is unclear if the SWRCB is relying on the Reservoir Area Management Plan as mitigation for this impact. This should be clarified.	
3.5.5.2 Culturally Significant Species. Potential Impact 3.5-6 Short- and long-term impacts on culturally significant species in riparian and wetland habitats.			
Surveys for these species have not yet occurred so presence and quantification of these species is not known.		The mitigation includes several actions to survey for wetlands and encourage rapid revegetation with native riparian species in the reservoir footprints as defined in the Reservoir Area Management Plan (Appendix B: *Definite Plan – Appendix H*) to ensure no net loss of wetland or riparian habitat acreage and functions. These measures, however, only address long term impacts, and ignore short term impacts.	
3.5.5.3 Special-status Species and Rare Natural Communities. Potential Impact 3.5-7 Short-term impacts on special-status plants and rare natural communities from construction-related activities			
Surveys for special-status species and rare natural communities should be conducted prior to ground disturbance, but impacts cannot be quantified, or significance determinations made, absent a baseline.	Resources within the construction envelope will be temporarily impacted even with establishment of revegetated areas. This should be considered a significant short-term impact based on the SWRCB's own significance criteria (up to 2 years of loss). The no net loss through re-establishment addresses long term impacts only.	The DEIR indicates that because the SWRCB cannot ensure implementation of the terrestrial aspects of the Final Restoration Plan, it is analyzing the impact in this DEIR as significant and unavoidable. This is improper. It is reasonable to expect implementation of, and compliance with, the plan. *Oakland Heritage Alliance v. City of Oaklan*d (2011) 195 Cal. App. 4th 884, 906 cited in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal. App. 4th 214, 246. As such, the State Board is obligated under CEQA to require such implementation and compliance as a mitigation measure. Furthermore, a CDFW SAA could be reasonably expected to include conditions to address impacts to special-status plants and rare natural communities.	
DEIR SECTION: FLOOD HYDROLOGY			
3.6.2.3, Flood Hydrology			
Flood frequency analysis for the 10-year to 100-year events was performed for seven USGS gages along the Klamath River. The analysis used a Log-person III distribution method consistent with USGS Bulletin 17B (USGS 1982). The Bulletin 17B methods have been updated to Bulletin 17C. The updated version (Bulletin 17C) replaces statements to acknowledge climate variability and climate change. The peak discharge frequency analysis is should be revised to utilize the updated methods in Bulletin 17C.	The KRRC proposes to work with willing landowners to implement a plan to address the significant flood risk following dam removal for the 36 habitable structures (including permanent and temporary residences) located in the altered 100-yr floodplain between Iron Gate Dam and Humbug Creek. However, the potential impacts to environmental resources, or identification of potentially hazardous materials from relocating, elevating, or other methods to relocate, or remove these structures is not identified. The DEIR should be revised to identify these impacts.	It is unclear whether the proposed Federal Emergency Management Agency (FEMA) 100-year floodplain boundary impact potentially developable lands that would otherwise be outside of the FEMA 100-yr floodplain under existing conditions. Figure 7.7-1 displays structures in the 100-year floodplain following dam removal; sheets 1 of 8, and 3 of 8 show post-dam increases in flood depths that may be within areas with planned developments and may impact private property potential. The impact analysis should include impacts to habitable structures, along with any planned development, private property, or land uses that would allow for future development (or use).	
DEIR SECTION: 3.7 GROUNDWATER			
3.7.2.2 Local Groundwater Conditions			

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
The wells illustrated in Cross-Section A-A', B-B', C-C' (page 3-648+) show wells with water table below the Copco No. 1 reservoir level. This information indicates that the wells may still be recharged from water seepage from the base of the reservoir, not from lateral regional groundwater flow. Drawdown of the Copco No. 1 reservoir may decrease or eliminate the source of groundwater recharge for at least a dozen wells. The data presented for wells near the Iron Gate reservoir suggest that the groundwater table is higher than the reservoir. Drawdown of the surface water within the reservoirs have the potential to impact adjacent groundwater levels, regardless of whether the groundwater water levels are higher or lower than the current reservoir levels. However, the wells with water levels below the reservoir level, i.e., the Copco No. 1 reservoir, may be more reliant on the reservoir as a source of groundwater recharge, and therefore these wells may be more affected by the reservoir drawdown. As the wells are all drilled wells set within fractured bedrock, each well will have a unique response to the reservoir drawdowns, depending on the fracture orientation and hydraulic properties. Each well's sensitivity to the drawdown will also rely on the current well yield and availability of water-bearing fractures. For instance, a low yield well where the recharge is low may be more sensitive to the reservoir drawdown, especially if the well is hydraulically connected to the surface water in the reservoir.			
3.7.3 Significance Criteria			
	"No significant impact" as asserted on Page 3-665, cannot be claimed until drilling occurs to remedy the loss of a well's capacity to serve its intended use.		
3.7.5 Potential Impacts and Mitigation			
	Page 3-665 "Potential Impact 3.7-2 The Proposed Project could interfere with groundwater recharge and adversely affect surface water conditions in the Klamath River" states no significant impact based on the findings of Gannett et al. (2007) where 92 cubic feet per second of groundwater is predicted to discharge to surface water within the reach between Iron Gate dam and the upper reservoirs. However, the well data presented within the DEIR demonstrates a large degree of variability with regard to vertical groundwater flow, where some areas with low water levels relative to the reservoir water level may be		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	reliant on the reservoir as a groundwater recharge source. Any significant impact will be determined on a case-by-case basis and should be adequately addressed within the Groundwater Well Management Plan.		
DEIR SECTION: WATER SUPPLY/WATER RIGHTS			
3.8.3 Significance Criteria			
	The DEIR concludes that impacts to water supply and/or water rights are considered significant if they result in: (1) Causing unreasonable injury to existing water rights; or (2) Decreasing water supplies beyond what is needed for public health and safety (human consumption, cooking, and sanitation) for the current population. • These two criteria do not explicitly address resiliency or reliability, which could experience significant impacts, as indicated below. • The phrase "unreasonable injury" in the first criterion is not well explained. Under California law, the so-called "no-injury rule" (see Water Code, Sections 1702, 1706) can be triggered by almost any change in the point of diversion, place of use, or purpose of use of a water right that causes "injury" to, e.g., another water rights holder. The no-injury rule does not have any "reasonableness" threshold. Perhaps the word "unreasonable" is intended to reference the constitutional reasonable use doctrine (Cal. Const., art X, § 2), but if so, it's not clear why the two concepts should (or could) be combined together • The second criterion, including the reference to "public health and safety," sets an extremely low bar for impacts to water supply/rights. This criterion is unusual, and does not appear to be based on typical or standard water rights principles. It sets much too low of a bar to protect vested property interests or to maintain statutory priorities/preferences for municipal and domestic uses (e.g., Water Code, Sections 106, 106.5) over, e.g., environmental or irrigation uses.		
3.8.4 Impacts Analysis Approach			
	There is inadequate consideration of supply system resiliency or reliability, both of which might experience significant impacts. For example, even if the Lower Klamath Project reservoirs were not designed or operated as seasonal storage reservoirs to maintain		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	downstream flows (page 3-674), these facilities undoubtedly provide some level of physical capability to store water and control/time releases, which will be lost with dam removal. The DEIR's discussion of coordinated releases during the "extreme drought" of 2014-2015 illustrates this capability (pages 3-678–3-680).		
Potential Impact 3.8-4 Relocation of the City of Yreka water supply pipeline after drawdown of Iron Gate Reservoir could affect water supply.			
	The impacts analysis is not sufficiently detailed to show that Yreka's water rights will not be injured or otherwise impaired in dry or drought conditions. In particular, the analysis does not discuss the total downstream demands with legal priority and/or seniority ahead of Yreka's rights versus the anticipated flows.		
DEIR SECTION: AIR QUALITY			
Potential Impact 3.9.2, Exceedance of the Siskiyou County Air Pollution Control District emissions thresholds in Rule 6.1 (Construction Permit Standards for Criteria Air Pollutants)			
The project is potentially subject to 17 CCR 93105, but lack of detail in the Environmental Setting section makes it difficult to ascertain if the project is subject to this requirement. This should be analyzed and discussed. Additionally, the project must comply with California Health and Safety Code §41700 and §41701 regarding nuisance discharges and opacity limitations. It is unclear whether the project would violate these standards The DEIR should be revised to address this issue.		A significant and unavoidable impact was identified for Potential Impact 3.9-2, Section 3.9.5. Page 3-704 states that "the analysis in this section does not include mitigation to minimize impacts from construction emissions generated by the Proposed Project activities. Since similar minimization measures may be implemented during project construction…" This is in direct conflict with the CEQA Guidelines. A few mitigation measures are proposed in the Air Quality Appendix in Section N.4 (Page N-21 of the air quality Appendix – Appendix N). Additionally, there are numerous dust control measures discussed in 17 CCR 93105 (CARB 2011) and there are other feasible and reasonably achievable dust control measures that could be implemented and should therefore be discussed. Since the project must comply with the requirements of California Health and Safety Code §41700 and §41701 and is potentially subject to 17 CCR 93105 as well as SCAPCD Rule 4.1 and 4.2, it is reasonable to assume that any mitigation measures proposed would be enforceable under these regulations. *See Oakland Heritage Alliance v. City of Oaklan*d (2011) 195 Cal. App. 4th 884, 906 cited in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal. App. 4th 214, 246.	Impact 3.9-2 was found to be significant and unavoidable, but the analysis does not specify whether the impacts would be cumulatively considerable and does not address whether cumulative impacts would result from the project. Discussion of cumulative impacts of a project is required as stated in section 15130 in the CEQA Guidelines.
3.9.3, Significance Criteria			
Regional haze is discussed generally in a broader context in Section 3.9.3, then in the Potential Impacts and Mitigation Section (section 3.9.5), conformance with the California Regional Haze Plan is evaluated and there was	Note that Section 3.9.1 of the DEIR states that the Area of Analysis includes Siskiyou County as a whole and there are two Class I areas within Siskiyou County as well as two associated IMPROVE monitoring stations		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
a finding of no significant impact since the project would be in conformance with the regional haze plan. CEQA Guidelines state in Section 15125(e) that where a Proposed Project is compared with an adopted plan, the Environmental Setting shall contain an examination of the existing physical conditions as well as potential future conditions discussed in the plan. The DEIR should give a more thorough description of the Regional Haze Plan to provide context for the reader, and inform the impact analysis.	(TRIN1 and LABE1). Discussion of the IMPROVE monitoring station data should be included in discussion of the Environmental Setting Section for regional haze. Sources that may be used as a basis for discussion of monitoring include the Western Regional Air Partnership (WRAP) Regional Haze Rule Reasonable Progress Summary Report (WRAP 2013), the California Regional Haze Plan (CARB 2009), and California Regional Haze Plan 2014 Progress Report (CARB 2014). Additionally, visibility trends by year and various summaries of light extinction and haze distributions can also be located on the Federal Land Manager Environmental Database (2019) Website under Air Quality Related Values (AQRV) Summaries, Visibility (Colorado State University 2019). Including this information would inform the analysis and how the Proposed Project could affect haze.		
3.9.3., Significance Criteria (contd.)			
	The Air Quality impact section discusses the justification of using stationary source operational emissions "significance thresholds" to assess impacts from the project's construction emissions. These values are taken from Siskiyou County Air Pollution Control District (SCAPCD) Rule 6.1. This rule applies to the levels of emissions above which stationary sources would be subject to implementation of Best Available Control Technology (BACT) and emission offsets. This rule does not apply to construction emissions, but the DEIR states that use of these values is conservative when used to assess construction impacts and then asserts that if emissions from construction were to exceed these thresholds, "an air quality standard" would be violated and a significant air quality impact would result. This creates several uncertainties regarding the analysis. The analysis should be revised to address the following: • What precisely is the impact of exceeding these thresholds and what is the "air quality standard" that would be violated? Has this been quantified? The SWRCB should explain why the stationary source "thresholds" are used to assess impacts and what exceedance of these thresholds means in terms of impacts, not just that exceedance of these thresholds results in significant impacts without further explanation. CEQA Guidelines state in Section 15064.7 that "a threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the	The impact section needs to specify whether fugitive dust is likely to exceed 40% opacity for a period or periods aggregating more than three minutes in any one hour. If so, the project would be out of compliance with SCAPCD Rule 4.1 and would likely require mitigation of construction emissions to reduce the impact of the construction project to comply with this rule. Further, it is unclear whether the emissions will (1) cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, (2) endanger the comfort, repose, health or safety of any such persons or the public, (3) cause or have a natural tendency to cause injury or damage to a business or property? If so, the project would be out of compliance with SCAPCD Rule 4.2 and would likely require mitigation of construction emissions to comply with this rule.	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	effect will normally be determined to be significant by the agency" and, that thresholds of significance must be adopted by ordinance, resolution, rule, or regulation and be supported by substantial evidence. The "thresholds" used to assess significance in the DEIR document are air permitting thresholds which were not developed for purposes of CEQA's environmental review process, and do not meet the definition of a threshold of significance. In other words, exceeding this air permitting threshold does not necessarily indicate that a project would cause an air quality standard to be violated and conversely, meeting the air permitting threshold does not guarantee compliance with air quality standards. In addition, the current version of the document clearly does not meet the requirements in Section 15126.2 of the CEQA Guidelines that "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects." Since it is unclear to a reader what precisely the impacts are, the DEIR documentation obviously falls short of the requirement to clearly identify and describe the significant effects of the project on the environment. The language throughout the document and technical appendix refer to these levels of emissions as "significance thresholds," implying that these values are CEQA significance thresholds developed by the Air District, which is not the case – these are air permitting thresholds. This should be clarified throughout the relevant documentation.		
3.9.4, Impact Analysis Approach			
Section 3.9.4 describes the impact analysis approach and indicates that emissions have not been quantified since the 2012 EIR/EIS analysis, despite changes to the project. Despite the assertion that a quantitative assessment was made for the analysis, there was by necessity, some qualitative assessment of the likely similarity of impacts from the originally Proposed Project. The approach itself is not necessarily problematic. However, the fact that there were significant impacts found, there was not originally adequate mitigation proposed, and there are several instances where emission calculation software has been updated since the original analysis was completed, makes the original emission quantifications	The determination of significant and unavoidable impacts necessitates a more substantial investigation of potential project emissions and mitigation measures. It appears that impact 3.9-2 discussed in Section 3.9.5 was deemed significant and unavoidable based on violation of a quantitative threshold, but quantification of changes to emission rates were admittedly not completed. Additionally, the original emissions quantifications were done in part using CARB's OFFROAD 2007 software and CAPCOA's CALEEMOD version 2011.1.1. There have been updates to these programs (OFFROAD 2017 and CALEEMOD version 2016.3.2, respectively) which include changes to vehicle	The DEIR states that "the current proposal for the Proposed Project lacks sufficient detail concerning construction activities and it is too speculative to determine whether the mitigation measures proposed in the 2012 KHSA EIS/EIR are feasible and enforceable." Therefore, the analysis assumes that no mitigation would be implemented. At the very least, mitigation measures should be discussed given the finding of a significant and unavoidable impact, it is reasonable to interpret that the project should implement mitigation measures to comply with California Health and Safety Code §41700 and §41701.	There are some obvious flaws and invalid assumptions that were noted in Appendix N, which is based on the quantification of emissions from the 2012 analysis. The text of Appendix N, section N.2.1.5 regarding unpaved road dust states that "natural mitigation" from rainfall occurs but this would only be true over the course of an entire year. It is unclear if this was applied to daily emission rates, but it is safe to assume that the answer is yes, since this is included in the methods section and results are only presented in pounds per day. Applying a "natural mitigation" percentage based on

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
and the impacts determination invalid for assessing the potential impacts of the project in the context of the current environmental and regulatory setting.	emission factors. It is possible that these software updates could substantially change the outcome of the significance determination. This analysis should be performed, or the State Board should explain why it has not performed it. *See Cleveland Nat'l Forest Found. v. San Diego Assn. of Governments* (2017) 3 Cal. 5th 497, 515-516.		annual rainfall information is not appropriate for assessing impacts on a pound-per-day basis which is the basis for the significance determination. The section also claims that "natural mitigation" from rainfall is 76–77% whereas an accurate value would be more like 24 or 23% and, as previously noted, that would only be on an annual basis. Since background documentation and calculations were not available for the purposes of this review, it is difficult to see if there are errors in the calculations and results, or if this is just a misstatement in the text of Appendix N. It would be prudent to redo the analysis based on the new project details and reevaluate some of the faulty assumptions made concerning road dust and verify that the original assumptions in the 2012 analysis are accurate, up-to-date, and appropriate.
3.9.9.2, Criteria Air Pollutants			
In Section 3.9.2 – the Environmental Setting, Naturally Occurring Asbestos should be discussed in more detail. CEQA Guidelines Section 15125(a) states that the Environmental Setting Section should include a description of the physical environmental conditions in the vicinity of the project, which would include whether any portion of the disturbed area will be located in an area where the provisions of California Air Resources Board Airborne Toxic Control Measure under 17 California Code of Regulations (CCR) 93105 (California Air Resources Board [CARB] 2011) are potentially applicable. This regulation is designed to mitigate emissions of naturally occurring asbestos which may be emitted when the disturbed area contains naturally-occurring asbestos, serpentine, or ultramafic rock. Siskiyou County has several areas where ultramafic rock and naturally occurring asbestos have been discovered (Van Gosen and Clinkenbeard 2011), so enough information needs to be included in the Environmental Setting to determine if this rule is applicable.		If the project is found to be subject to the requirements of 17 CCR 93105 and does not obtain an exemption under paragraph (c) 93105, then requirements for road construction and maintenance in paragraph (d) and requirements for construction and grading operations in paragraph (e) apply. These potentially applicable dust control measures are not included as mitigation measures. The DEIR needs to discuss section 93105, including whether an exemption applies, and, if needed, include measures to control fugitive dust emissions from construction activities. This is particularly important because potential impact 3.9-2, discussed in Section 3.9.5 regarding project impacts was determined to be significant and unavoidable due in part to emissions of particulate matter $(PM)_{10}$ and $PM_{2.5}$. The CEQA Guidelines clearly state in Section 15126.4(a)(1)(B) that each measure available to mitigate an impact should be discussed and the basis for selecting a particular measure should be identified. Note that, if the requirements of 17 CCR 93105 apply, these mitigation measures would be enforceable as described in Section 15126.4(a)(2) of the CEQA Guidelines.	In Section 3.9.2.2 of the Environmental Setting regarding Criteria Air Pollutants, National Ambient Air Quality Standards (NAAQSs) are mentioned, but California Ambient Air Quality Standards (CAAQS), which are more stringent for certain pollutants, are not discussed. CAAQS should be added to the discussion.
DEIR SECTION: GREENHOUSE GAS EMISSIONS			
Potential Impact 3.10-1 Generation of greenhouse gas emissions, either directly or indirectly, that would exceed 10,000 MT CO2e			
Section 3.10.4 describes the impact analysis approach and indicates that emissions have not been quantified since the 2012 EIR/EIS analysis, despite changes to the	The impact being evaluated is whether the GHG emissions from the project, direct or indirect, would exceed 10,000 MT CO_2e. Yet, this question is simply not		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
Proposed Project. The State Board should either perform a new analysis to quantify emissions or explain why it has not performed such an analysis. *See Cleveland Nat'l Forest Found. v. San Diego Assn. of Governments* (2017) 3 Cal. 5th 497, 515-516. Furthermore, in addition to the deficiencies in the GHG emission quantification methodologies discussed above, it seems strange that only the direct construction emissions are assessed based on a quantitative threshold, but the ongoing indirect impacts are only assessed qualitatively. It would be more appropriate to use the 10,000 MT threshold of significance to evaluate the indirect impacts since those are likely to occur over a longer timescale. The 10,000 MT CO_2e threshold was developed to assess operational impacts (ongoing sources of emissions) so use of this threshold is more conducive to evaluate the lasting impacts of non-renewable power generation than construction emissions. Typically, construction emissions are amortized over the life of the project in order to assess impacts, or some other qualitative means of assessment are used. Additionally, the original emissions quantifications were done in part using CARB's OFFROAD 2007 software and CAPCOA's CALEEMOD version 2011.1.1. There have been updates to these programs (OFFROAD 2017 and CALEEMOD version 2016.3.2, respectively) which include changes to vehicle emission factors. It is possible that these software updates could impact the significance determination since impacts for these emission sources are being assessed quantitatively in the DEIR. It would be prudent to redo the analysis based on the new project details and make a good-faith effort to quantify all direct and indirect emissions of GHGs resulting from the project in accordance with the CEQA Guidelines.	answered with respect to indirect emissions. Instead, on page 3-727 the replacement of the hydroelectric energy is discussed, and it is stated that 65 MW of electricity, 52% of the Lower Klamath electricity production, would be replaced with electricity generated from a resource mix which would be majority non-renewable. It is then stated that over the next 20 years this would be offset by PacifiCorp (which provides power to multiple states) increasing the renewable source electricity generation. Though it is true that generally, PacifiCorp will be replacing non-renewable sources with renewable sources in coming years, this is not an impact of the Proposed Project. Therefore, it is inappropriate to frame the impacts assessment of the Proposed Project within the context of PacifiCorp's long term, broad goals, which have no bearing on the impacts of this individual project. The fact is that the Proposed Project will likely result in 65 MW of 100% renewable energy being replaced with 65 MW of some mixture of non-renewable and renewable energy and the impacts of this must be assessed based on likely power generation portfolios over the short and long term. PacifiCorp's Integrated Resource Plan is cited in the DEIR and therefore, it follows that a good faith effort could be made to determine what mixture of resources would be representative for the replacement of the hydroelectric power generation (or reasonable assumptions could also be made based on the Renewable Portfolio Standard goals) over the short and long term. To adequately convey the impacts of this project to the public, an attempt to quantify the increase in GHG emissions from non-renewable sources that would be required to replace the 100% renewable energy source of the dams must be made.		
3.10.4 Impact Analysis Approach			
	In the Impacts Analysis Approach Section 3.10.4, it is specified that there were "minor" changes between the 2012 EIS/EIR analysis and the Proposed Project, primarily due to timing. However, there are no statements specifying whether the emissions of greenhouse gases will increase, decrease, or stay the same. This analysis should be added.		
3.10.4 Impact Analysis Approach (contd.)			
	In Section 3.10.4, page 3-722, it is stated that "It is likely that sulfur hexafluoride (SF_6) would be released during deconstruction because the circuit breakers from the power facilities would be emptied. Although		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	SF_6 has a relatively high GWP, sufficient data was not available at the time of this writing to quantify emissions". Not only does SF_6 have a "relatively high GWP", it has the highest global warming potential (GWP) of any compound quantified by human-kind. SF_6 has a lifetime of 3,200 years in the atmosphere (Blackman, Averyt, and Taylor 2016), and a GWP of 23,500 over a 100-year time horizon (IPCC 2014). Based on this GWP value, just one pound of SF_6 released is equivalent to over 10.7 metric tons of carbon dioxide equivalent (CO_2e). Therefore, a good-faith effort must be made to quantify these emissions particularly since charge sizes for gas insulated switchgear equipment rated 50 kV or more can range from hundreds to thousands of kg per installation, and low voltage switches contain 1-2 kg per installation (IPCC 1997) depending on the model year. In addition to the 9,455 MT CO_2e already quantified, the emissions from SF_6, depending on the type and quantity of circuit breakers, could easily be exceeded. There is no information provided on the type of equipment in Appendix O or DEIR section 3.10.4.		
3.10.4 Impact Analysis Approach (contd.)			
	One source of emissions mentioned was that currently sequestered organic carbon would be released when sediments including biological material are released from their current anoxic environment upon the commencement of the Proposed Project activities. This was mentioned in the environmental setting, but never mentioned again and the magnitude of emissions were not described or quantified. It should be. Additionally, changes in vegetation associated with construction activities, revegetation efforts, and changes in recreational area extents and locations were not assessed with respect to climate impacts. The impacts due to net vegetation changes and associated changes to carbon sequestration should be described or quantified as deemed appropriate based on a good-faith effort.		
DEIR SECTION: GEOLOGY, SOILS, AND MINERAL RESOURCES			
3.11.4, Impacts Analysis Approach			
Sediment transport modeling was performed from 2002 survey data (USBR 2012), and the volume of sediment transport is assumed to be explicit of sediment volume, as it relies on the rate of drawdown dictated by the hydrology (dry/normal/wet). The volume and spatial extent of sediment transported for the project is based	The DEIR acknowledges fine sedimentation as a short-term impact to aquatic resources, anticipating impacts to occur within the first year following the proposed drawdown and dam decommissioning. The DEIR proposes to release flows up to the 10-year recurrence interval flood. Flows of this magnitude are likely to	Potential Impact 3.11.3 notes that reservoir drawdown could result in hillslope instability in reservoir rim area. The geologic assessment and slope stability analysis conducted by KRRC indicated that certain segments along the Copco No. 1 Reservoir rim have a potential for slope failure that could impact existing roads and/or	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
on the USBR 2012 model results. The DEIR proposes to perform sediment jetting to maximize erosion of reservoir deposits; anticipated to mobilize an additional 13–41% of the sediment volume expected to erode during dam removal (DEIR Table 3.2-12). Although the estimated volume (USBR 2012) is predicted through year 2020 based on sediment trapping/sampling for accumulated sediments between the time of survey and proposed actions, inputs from sediment jetting are not considered in the model. The spatial and temporal extents in the USBR 2012 may not adequately describe the additional input of fine sediment.	deposit fine sediment at diversion head gates, tributaries, in side channels, and overbank floodplain habitats, potentially causing vertical and oblique accretion of the floodplain and point bars. Vertical accretion has potential to raise the elevation of backwater habitats causing for a higher flow to reactivate them. Oblique accretion has potential to enlarge point bars. Vertical accretion may occur at the floodplain fringe where low velocities and backwater areas exist. The DEIR proposes to survey the river bed downstream of Iron Gate to Humbug Creek, and adaptively manage aggradation and tributary barriers by mechanical removal outside of the main channel. The reach between Iron Gate and Humbug Creek is within a narrow and confined valley, the reach exhibits long riffle-runs and deep pools in a canyon section with little to no floodplain that would accrete fine sediments. Reaches downstream of Humbug Creek are in a much less confined valley and the morphology of the channel is an alluvial meandering channel dominated by riffle-pools, point bars, and an active floodplain. The upstream canyon reach has a higher transport capacity and fine sediment is anticipated to transport out of this reach to downstream reaches. **The DEIR does not describe the potential short-term impacts to stream morphology of the lower reaches of the Klamath River. The downstream reaches are more sensitive to changes in sediment loading and flow, and have higher potential for vertical, lateral and oblique accretion of fine sediments.** Accretion of sediments may cause short-term impacts to stream morphology, which could potentially lead to long-term impacts. For example, oblique accretion of lateral bars downstream of the Humbug Creek Confluence, has potential to adversely direct the lower stage flows towards the opposite bank, and repositioning of the thalweg. During successional high seasonal flow periods, the channel may take this new thalweg position and exacerbate the erosional forces along the opposite bank. Lateral accretion may also exacerbate the situation, as excessive deposition of fine sediment deposits near the floodplain fridge could grow in with vegetation. **Impacts to stream morphology associated with fine sediment accretion downstream of Humbug Creek are recommended to be evaluated and adaptively managed.** The downstream reaches have an active floodplain, where excessive fine sediment would deposit onto the floodplain and channel bars and have	private property. These areas included 3700 linear feet of slopes along Copco Road and approximately 2800 linear feet of slope adjacent to private property. Up to eight parcels in these areas have existing habitable structures that could potentially be impacted. However, KRRC has only proposed to complete additional field geologic investigation and laboratory testing of material properties to better understand the potential for slope instability in these areas. A future study is not adequate to define the impact and associated mitigation that would be necessary for the project.	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	potential to cause impacts to stream morphology. The reservoir drawdown analysis should be revisited to justify the specified rate of 2 feet to no greater than 5 feet per day for the drawdown. A slower drawdown would likely decrease the episodic nature of the reservoir sediment erosion, pending further analyses on the sediment slope stability Landslides may be promoted by the drawdown by virtue of the ground water levels within adjacent hillside being out of equilibrium with the lower hydraulic heads produced during the reservoir lowering. The elevated pore pressures produced by the negative stress of the proposed rapid drawdown will create a lower coefficient of internal friction within the soil/sediment, which will enhance the potential for slope failure within the reservoir sediment and adjacent hillside.		
3.11.4, Impacts Analysis Approach			
		As a result Mitigation Measure GEO-1 Slope Stabilization was recommended, which consists of the following (from Page 3-765): "For any large slope failure that occurs during drawdown or the year following drawdown, KRRC will offset potential impacts by implementing the following actions: 1.Move affected structures or purchase affected property, 2.Re-align affected road segments, 3.Engineer structural slope improvements (e.g., drilled shafts or other structural elements that could be installed to resist slope movement), and 4.Revegetate affected areas. The monitoring period of "only during drawdown or the year following" for potential mass-wasting impacts is not adequate. The potential for landslides will continue beyond that time, until potential stabilization by natural vegetative growth will require longer period of time. Depending on climate and weather events, the period could be extended to five (5) years after the drawdown. The planned monitoring period should be extended, that the slopes at risk in other reservoirs be monitored, and that the engineering solutions could be more aggressive.	
DEIR SECTION: HISTORICAL RESOURCES AND TRIBAL CULTURAL RESOURCES			
3.12 Cultural Resources			
The DEIR cultural resources section relies upon records searches conducted as part of the Klamath Hydroelectric Project Relicensing (FERC 2007) and 2012 EIR/EIS studies (PacifiCorp 2004 and Cardno Entrix 2012), with an	The DEIR discussed KRRC's updated records search at the Northeast Information Center of the California Historical Resources Information System (CHRIS) which was conducted in 2017. This 2017 updated records		The document does not include any discussion of whether resources might qualify as "unique archaeological resource" under PRC § 21083.2. It should be revised to do so. It only mentions

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
updated records search in 2017 by KRRC which included the study area from the Oregon-California state line downstream to Humbug Creek. In addition, KRRC conducted a heritage search at the Klamath National Forest in 2017. However, the DEIR does not indicate whether archaeological surveys have been conducted as part of this project to identify resources within the Area of Analysis which may not be previously recorded. In section 3.12.2.3, the DEIR states "The majority of the past surveys involve pedestrian field survey and cultural resources monitoring. Overall, an estimated 8,189 acres of federal, state, and/or private lands have been previously surveyed within the records search area and except for some proposed disposal sites, encompasses the current boundaries of the Proposed Project." This language is not clear on the extent to which the study area has been subject to intensive pedestrian survey or how recently those surveys were conducted. Generally accepted professional practice is that areas that have not been surveyed within the past 5-10 years should be resurveyed to ensure adequate identification efforts. Site records should be updated to record current conditions and integrity of previously recorded resources. Changes in environmental conditions over time can lead to changes in visibility allowing for the identification of resources; the same environmental factors can change the condition and integrity of known cultural resources as well. The Cultural Resources Plan (attached to the Definite Plan but not to the DEIR) suggests that a survey was conducted in 2004; such survey is now 15 years old and should be updated. The DEIR should be revised to include detailed information on the timing, coverage, and results of the pedestrian survey to identify archaeological resources.	search included the study area from the Oregon-California state line downstream to Humbug Creek. Appendix L of the Definite Plan indicates that an expanded records search was conducted in 2018 for an area encompassing a 0.5-mile wide zone on either side of the Klamath River from below Humbug Creek to the mouth of the river at the Pacific Ocean. Appendix L of the Definite Plan indicates that the results of that 2018 expanded records search would be incorporated into future reports. If downstream cultural resources in that zone have the potential to be affected by the Proposed Project, then those records search results should be incorporated into the DEIR and that area should be considered part of the Area of Analysis for the DEIR. Some of those records would be on file with the Northwest Information Center at Sonoma State University which houses records for Del Norte and Humboldt Counties. Consideration of potential project impacts to downstream historical resources and tribal cultural resources is critical.		archaeological resources as California Register of Historical Resources (CRHR)-eligible historical resources or as tribal cultural resources.
3.12.2.2 Historic Period			
In the section labeled "Historical Landscape Analysis" on page 3-813, it is not clear whether a historical landscape has been identified which warrants consideration as a historical resource under CEQA. The DEIR needs to be clear if the project area is considered a historical landscape, which should then potentially be considered as a historical resource under CEQA.			
3.12.5, Potential Impacts and Mitigation			
	Table 3.5-3 in Appendix W lists previously recorded archaeological sites and built environment resources and indicates their National Register of Historic Places (NRHP) eligibility status. Under CEQA, resources that are eligible for listing in the CRHR are also historical	Mitigation Measures TCR-1 through TCR-3 refer to development of an HPMP which will include a Tribal Cultural Resources Management Plan (TCRMP), a Looting and Vandalism Prevention Program (LVPP), and an Inadvertent Discovery Plan (IDP). However, as	The impacts analysis considers impacts to tribal cultural resources, built environment historical resources, and historic-period archaeological resources. There is no discussion relevant to prehistoric archaeological sites which may be

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	resources for which impacts must be analyzed. The DEIR needs to describe whether there are resources which are CRHR eligible or eligible for local listing but not NRHP eligible (also known as "CEQA only" resources). If so, these would not be addressed in the Historic Properties Management Plan (HPMP) under development by KRRC for FERC to comply with Section 106 (because such resources would not be historic properties under Section 106). The DEIR does not identify such resources or address mitigation of impacts related to those resources.	disclosed under discussion of Impact 3.12.5.2, FERC and KRRC are initiating the development of these plans under the Section 106 process and "the State Water Board cannot require their implementation." It's not acceptable to defer mitigation during future consultation processes under CEQA (CEQA Guidelines Section 15126.4(a)(1)(B)). Mitigation measures, and their effect on the impacts of the project, should be clearly stated in the DEIR for consideration by stakeholders, the public, Native American Tribes, and others.	CRHR eligible (and therefore historical resources under CEQA) but which may not qualify as tribal cultural resources. The DEIR should be revised to include this discussion. Not all prehistoric sites are Tribal Cultural Resources (TCRs).
3.12.5, Potential Impacts and Mitigation			
		There is no mitigation measure that outlines what the HPMP will include. It is referenced somewhat under MM TCR-1, but it should be described in greater detail in an MM of its own and should be referenced under Potential Impacts 3.12-13, 3.12-14, 3.12-15, and 3.12-16 (as well as others). For example, it is not clear whether pre-construction data recovery would be implemented for eligible historic archaeological sites that cannot be avoided by the project. Under CEQA, avoidance and preservation in place are the preferred forms of mitigation for archaeological sites. When avoidance is infeasible, a data recovery plan should be prepared to provide for the systematic recovery of scientifically consequential information from the site (CEQA Guidelines, Section 15126.4). There is no mention of data recovery in the entire DEIR document.	
Potential Impact 3.12-11 Facilities removal would result in significant impacts to Copco No. 1 Dam, Copco No. 2 Dam, and Iron Gate Dam, their associated hydroelectric facilities, and the Klamath River Hydroelectric Project District as a whole.			
		Under Potential Impact 3.12-11, the DEIR discusses impacts to Copco No. 1 Dam, Copco No. 2 Dam, Iron Gate Dam, and their associated hydroelectric facilities, as well as the Klamath River Hydroelectric Project District as a whole. No mitigation measures are listed relative to this impact in Section 3.12.5.2 or in Table ES-1. The text of the impact discussion mentions that restoration, adaptive re-use, and relocation are all not feasible. It references "inclusion of documentation measures in conformance with the Secretary of the Interior's guidance" but does not specify what this would entail. The text references "KRRC's proposed mitigation measure" but no MM for this impact is included. Typical mitigation for demolition of an eligible resource includes documentation according to Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards. While such documentation typically does not reduce impacts to	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
		less than significant, additional MM can also be crafted. In fact, **CEQA requires that all feasible mitigation be undertaken even if it does not mitigate below a level of significance**. Such measures might include preparation of interpretive signage, development of public school curriculum related to the historic themes specific to the resource in question, preparation of a historic context document for the county or region in question or related to historic themes specific to the resource, preparation or funding of museum exhibits, or other appropriate strategies.	
DEIR SECTION: AGRICULTURE AND FORESTRY RESOURCES			
Potential Impact 3.15-4 Other changes in the existing environment that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.			
	Potential Impact 3.8-2 in the Water Supply/Water Rights section describes the potential for less water to be available to users (including for irrigation of agricultural lands) as a result of the Proposed Project, as some Klamath Irrigation Project deliveries are made to California users. These same users turn to groundwater pumping when there are surface water shortages; however, there are ground water management plans that must be implemented by 2022 and may adjust sustainable pumping levels. Some farms may not be able to afford, or have the ability, to pump groundwater during dry years, which could result in the indirect conversion of Farmland to a non-agricultural use.		
DEIR SECTION: POPULATION AND HOUSING			
Potential Impact 3.16-2 Displacement of substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.			
	As provided in Section 3.11.5 on page 3-762 of the Geology, Soils, and Mineral Resources section of the DEIR and described in Appendix B: Definite Plan, the geologic assessment and slope stability analysis conducted by KRRC indicated that certain segments along the Copco No. 1 Reservoir rim have a potential for slope failure that could impact existing roads and/or private property. These areas include approximately 3,700 linear feet of slopes along Copco Road and approximately 2,800 linear feet of slope adjacent to private property. Up to eight parcels in these areas have existing habitable structures that could potentially be impacted. The Population and Housing section of the DEIR neglects to consider potential impacts to these residences.	MMs need to be included when this impact analysis is remedied.	
Potential Impact 3.16-2 Displacement of substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere (contd.).			
	Section 3.16.2 of the Population and Housing section of the DEIR note that 36 residences would be affected by changes in the FEMA 100-year flood elevations	MMs need to be included when this impact analysis is remedied.	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	resulting from the removal of Iron Gate Dam. As described on page 3-632 in Section 3.6.5.2 of the Flood Hydrology section of the DEIR, the change to the 100-year floodplain inundation area would pose significant flood risk to these 36 residences, resulting in the possibility that these structures would be relocated. The Population and Housing Section should consider the Proposed Project's effect on these 36 structures together with the 8 residences vulnerable to landslide as a result of reservoir drawdown.		
Potential Impact 3.16-2 Displacement of substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere (contd.).			
	Property owners with residences in locations that have views and/or recreational access to the reservoirs could feel discontented by the change from a flatwater aquatic environment to a riverine environment. As a result, the Proposed Project could cause population in the area to decrease, as property owners could conceivably decide to relocate to another location that supports a more favorable perceived aquatic environment. Additionally, the loss of dam operating revenue that would result from the removal of the dams, and loss of tax revenue, could impact the quality of education in the long run. A decline in the quality of education could cause current households to relocate outside the County in search of better educational opportunities. The Population and Housing section of the DEIR should discuss the potential fiscal effects associated with a declining population and loss of tax revenue and the implications this may have for public school enrollment and the quality of education. In addition, the DEIR should consider the relocation of these households, and the need for replacement housing elsewhere, which may be associated with indirect displacement as a result of discontent.		
DEIR SECTION: PUBLIC SERVICES			
Potential Impact 3.17-1 Increased public services response times for emergency fire, police, and medical services due to construction and demolition activities.			
	This analysis should be revised to include a discussion of impacts to emergency services due to an increased work force.		
Potential Impact 3.17-2 The Proposed Project's elimination of a long-term water source for wildfire services could substantially increase the response time for suppressing wildfires.			
	The Proposed Project would result in the removal of three readily available water sources, not one as is stated. This should be corrected. It states, "The removal of the reservoirs could increase the turn-around time for helicopters or ground crews refilling with water for fire abatement purposes." Yet, the next two sentences conflict with this statement saying that it would not be changed, because the river	The *Definite Plan, Appendix C-01, Fire Management Plan* should identify additional permanent water sources that emergency services (specifically, helicopter water tankers) could use for wildland fire fighting, readiness, and prevention. Stating the Klamath River, where it flows freely within the former reservoir footprints could be used for as source of water to fight wildland fire is far too speculative. Topography and	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	will still be there, and other reservoirs are available. These sentences need to be made consistent with each other. In addition, the impact analysis fails to quantify the increase in turnaround time for helicopters due to the loss of reservoirs (e.g., two minutes is very different than 30 minutes). Furthermore, although the impacts is determined to be significant and unavoidable, given the potential devastating wildfire implications of implementing the Proposed Project, some quantification of the impacts should be made for the public and wildfire fighting agencies.	river flow patterns/fluctuations will prevent many locations of the River from ever being used by helicopter. The *Fire Management Plan* should identify areas where man-made structures are located in areas that are safe and reliable for helicopter water tankers to extract water. Man-made structures such as dip tanks provide a reliable, safe and permanent water source, and could be installed/designed integrated with the proposed dry hydrants.	
Potential Impact 3.17-3 Potential effects on school services and facilities.			
	The impact discussion should analyze the potential for the loss of school-aged children due to residential relocation as a result of lower quality of life for areas around the reservoirs. Also, the loss of dam operating revenue that would result from the removal of the dams could impact the quality of education in the long run. A decline in the quality of education could cause current households to relocate outside the County in search of better educational opportunities for their children.		
DEIR SECTION: RECREATION			
3.20.2, Environmental Setting			
Data used to estimate facility and reservoir use was collected in 2001 and 2002 by PacifiCorp (PacifiCorp 2004) and is approximately 18 years old. It is likely that use levels of these facilities and reservoirs have changed since 2002, as shifts in participation in outdoor recreation has occurred. For example, freshwater fishing across the United States has declined from 43.1 million participants in 2006 to 38.3 million participants in 2017 (RBFF and OF 2018) while boat ownership increased from 20.5 million in 2009 to 21.2 million in 2012 (RBFF and OF 2013) and overall outdoor participation increased from 41.9% of all Americans in 2006 to 49.0% in 2017 (OF 2018). The State Board should address these shifts in the DEIR; otherwise, it is possible that any impact analysis that relies on this information may not be accurate.	The Significance Criteria for Recreation (Section 3.20.3) include "Changes to or loss of rare or unique recreational facilities affecting a large area or substantial number of people" and "Significant increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated" (page 3-1002). Because the data used to establish baseline use of the facilities and reservoirs associated with the Proposed Project is approximately 18 years old and outdoor recreation participation has changed in the meantime, meaningful analysis of a "substantial number of people" and/or the current and projected levels of use of regional facilities is unlikely. For example, the impact analysis for Potential Impact 3.20-1 states, "Overall, the impacts of construction and restoration activities are limited in temporal and geographic scope and so would not result in changes to or loss of rare or unique recreational facilities affecting a large area or substantial number of people. Nor would they result in a significant temporary increase in		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. Tables 3.20-2, 3.20-3, and 3.20-4 show that there are numerous alternative recreational facilities and access outside the area of effect, but within the vicinity. **Most of these facilities experience low to moderate use levels and they can accommodate additional users. Recreational users who are temporarily displaced would be able to use these other areas, but they are unlikely to overload the other areas because those areas have sufficient capacity to accept them**. Therefore, impacts will be less than significant" (page 3-1006). Without updated facility and reservoir use data, the degree to which displaced reservoir recreationists would affect facilities and reservoirs in the region cannot be accurately estimated.		
Potential Impact 3.20-2 Long-term changes to or loss of reservoir-based recreation activities and facilities due to removal of Iron Gate and Copco No. 1 reservoirs.			
	Citing from the 2004 PacifiCorp report, the DEIR states "When surveyed on their perception of crowding at the reservoirs, the mean score of respondents was 3.2 (on a 9-point scale from 1—not crowded to 9—extremely crowded), indicating that visitors did not feel overly crowded while participating in recreation activities. Further, **approximately 39 percent of respondents had changed their visits to the Lower Klamath Project reservoirs from other lakes in the area to avoid crowding"** (page 3-994). The impact analysis for Potential Impact 3.20-2 states "As indicated in the responses to visitor use surveys conducted by PacifiCorp (2004), the reservoirs are popular recreation areas in part **because they are uncrowded relative to other lakes in the area** and do not require user fees"(page 3-1007), and "…Given that a number of other lakes and reservoirs in the vicinity of the Lower Klamath Project provide **similar opportunities for reservoir-based recreation in an uncrowded setting,** KRRC's proposal to retain and enhance most existing river access facilities within the Area of Analysis for recreation, and Parcel B land transfer under the Proposed Project that would potentially allow for additional future river-based recreation opportunities, the **Proposed Project would be highly unlikely to result in a loss of rare or unique recreational facilities affecting a large area or substantial number of people**. In addition, the KRRC	The Draft Recreation Plan is included in the impact analysis as contributing to the "no significant impact" determination for reservoir-based recreation. The impact analysis for Potential Impact 3.20-2 states "*The Proposed Project includes a Recreation Plan (see Appendix B: Definite Plan – Appendix Q for the Draft Recreation Plan) that would be* ***used to identify new recreation opportunities that offset the proposed removal of reservoir recreation sites as well as the reduction in whitewater boating days resulting from the Proposed Project.*** *KRRC has started an ongoing stakeholder outreach process seeking input from potentially impacted recreation users, operators, managers and administrators, including tribes, state and federal agencies, county agencies and chambers of commerce, local residents, recreation businesses, and public interest groups.* ***The stakeholder outreach process would continue through the development of the Final Recreation Plan, which is scheduled for completion by KRRC in June 2019.*** *The Draft Recreation Plan includes potential recreation opportunities identified in the USBR (2012) Detailed Plan as well as those identified through recent stakeholder outreach efforts.* ***The Draft Recreation Plan also outlines preliminary criteria for screening opportunities, including whether each recreation opportunity would: "directly address the recreation impacts generated by the KHSA;" and "directly address or offset changes in***	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	has prepared a Draft Recreation Plan (Appendix B: Definite Plan – Appendix Q) that includes stakeholder outreach, identification of potentially new or modified recreational facilities as well as evaluation and screening criteria, which will further reduce any potential impacts" (page 2-1009). As described in Comment 1, "**Changes to or loss of rare or unique recreational facilities** affecting a large area or substantial number of people" is one of the criteria for the determination of significance. Because visitor surveys have identified the Iron Gate and Copco No. 1 Reservoirs as uncrowded relative to other lakes in the region, **these reservoirs could be interpreted as rare within the region for their low use and uncrowded setting**. The analysis focuses on the redistribution of these users to other existing lakes in the region, **yet the data and analysis explicitly states that conditions at these lakes were unsatisfactory due to perceived overcrowding** under current conditions. It can be anticipated that the loss of reservoir-based recreation on Iron Gate and Copco No. 1 Reservoirs would result in the perception of increased levels of overcrowding at other lakes in the region, despite the reported use of these other lakes being low or moderate. Additionally**, as there are few reservoirs within Siskiyou County, California that are of similar size and setting**, the Iron Gate and Copco 1 reservoirs **could be considered rare within the California region**.	***the localized reservoir recreation or Hells Corner boating near where the impacts are occurring."*** *In addition, the Proposed Project includes the transfer of approximately 8,000 acres of real property (Parcel B lands; see also Section 2.7.10 Land Disposition and Transfer) located in Klamath County, Oregon, and Siskiyou County, California, to the respective states (or a designated third party) for public interest purposes, including river-based recreation, open space, active wetland and riverine restoration, and public education* (Page 3-1008)" and "*Given that **a number of other lakes and reservoirs in the vicinity of the Lower Klamath Project provide similar opportunities for reservoir-based recreation in an uncrowded setting,** KRRC's proposal to retain and enhance most existing river access facilities within the Area of Analysis for recreation, and Parcel B land transfer under the Proposed Project that would **potentially allow for additional future river-based recreation opportunities**, the Proposed Project would be highly unlikely to result in a loss of rare or unique recreational facilities affecting a large area or substantial number of people."* The Recreation Plan Update webinar (hosted by KRRC on January 30, 2019) presented an updated Recreation Plan, which consists of eight new or upgraded river access points (four in Oregon and four in California) including (Americans with Disabilities Act (ADA)-accessible facilities where feasible, and recreational access to existing sites during construction where feasible. As stated in the screening criteria, the opportunities presented in the Recreation Plan will "directly address or offset changes in the localized reservoir recreation…near where impacts are occurring." Restricting the Recreation Plan to eight **new or upgraded river access points fail to directly address the loss of flatwater recreation**, particularly as reservoir-based recreation opportunities could be considered rare within Siskiyou County, California. For this reason, **it is inappropriate to assume that the Recreation Plan would address or offset any impacts to reservoir-based recreation.** Additionally, the impact analysis for Potential Impact 3.20-4 states *As described previously, the Proposed Project involves the development and implementation of a plan to construct new recreational facilities and river access points along the restored river channel between the California-Oregon border and Iron Gate Dam following dam removal activities. **Replacement of***	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
		recreation facilities would not necessarily be "like for like", but rather would be designed to accommodate similar levels, if different types of use. *This would require the creation of new gravel roads and other improvements for vehicle and visitor access to and use of the new river-based recreation sites, which could result in construction-related impacts to the environment, including potential impacts to water quality and historical and/or tribal cultural resources.* ***While new recreation facilities are part of the Proposed Project, the final location, size, and design of the facilities are still under development and will be the subject of subsequent approvals. It is thus too soon to conduct a meaningful environmental analysis of the replacement facilities.*** *However, construction and operation of new recreational facilities would undergo any environmental review necessary for the subsequent approvals, and* ***any impacts of the construction and operation of the facilities would be mitigated, if feasible, to levels that comply with all applicable laws, regulations, and environmental standards. Because this component of the Proposed Project would not be approved until a later date, for the purposes of this EIR the impacts of this component are not significant***." (page 3-1010). Specific mitigation measures regarding recreation would be determined by FERC through a separate project permitting process. Therefore, it is inappropriate to assume that impacts to recreation would be less than significant without determining what the mitigation measures would consist of.	
DEIR SECTION: HAZARDS AND HAZARDOUS MATERIALS			
3.21.2, Environmental Setting			
The government records database searches, consistent with American Society for Testing and Materials (ASTM) E1527 – 13 or ASTM E2247 – 08 should be conducted. Additionally, review of available sediment quality data (*Bureau of Reclamation Klamath Sediment Chemistry Report* [BOR 2011]) suggests that additional assessment may be warranted to include additional deep-sediment samples, additional Total polychlorinated biphenyls (PCB) analyses (especially from deeper sediments), and additional Polycyclic Aromatic Hydrocarbons (PAH) analyses so that the detection level, at a minimum, falls between the threshold effect concentration (TEC) and probable effect concentration (PEC) values, instead of greater than the PEC levels.		Recommended Measure TR-1 (Section 3.22) should be implemented as an MM, as mentioned previous comments. TR-1 should assess: • The use of selective transportation scheduling to identify the least-traveled times on Copco Road for materials transportation; • The use of guide vehicles for transporting hazardous materials/wastes; • The use of busses to transport construction personnel to and from a central location to the construction sites; and, • Development of construction crew housing at a location nearer to the construction sites to reduce traffic volume on Copco Road.	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
		Similarly, Recommended Measure PS-1 – Fire Management Plan should be implemented as an MM, and should appropriately assess the feasibility of identifying, improving, constructing, and maintaining an adequate number of pools in the river and restoration areas for use as helicopter water tank filling locations and water sources for ground crews in order to fully mitigate the impact of wildland fire.	
DEIR SECTION: TRANSPORTATION AND TRAFFIC			
3.22.5, Potential Impacts and Mitigation			
	Section 3.22.5 of the Transportation and Traffic section of the DEIR states that the Proposed Project would include the import and export of construction equipment. Section 3.22.2.2 states that the Proposed Project would include the provision of off-road construction equipment such as cranes, excavators, loaders, and large capacity dump trucks, which would be delivered by tractor trailer vehicles. However, Table 3.22-6 and the analysis of proposed construction-related traffic do not consider vehicle trips associated with equipment delivery. Therefore, the analysis of construction-related vehicle traffic is incomplete and should be revised to consider vehicles trips associated with equipment delivery.		
Potential Impact 3.22-5 Construction-related activities could potentially substantially conflict with public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities resulting in an increased risk of harm to the public.			
	Section 3.22-5 states that non-reservoir-based recreation within the Area of Analysis would still occur but would be dispersed away from the immediate vicinity of Copco No. 1 and Iron Gate and therefore would not overlap with construction traffic. Page 3-986 of the Recreation section of the DEIR indicates that two privately-owned recreation facilities are located within 2.5 miles downstream of the Iron Gate Dam along Copco Road: The R Ranch Klamath River Campground and the Klamath Ranch Resort Blue Heron RV Park. It is reasonable to assume that non-reservoir-based recreation activities associated with these facilities would still occur during Proposed Project construction and would peak during summer months, thereby overlapping with peak construction traffic, contrary to statements in the DEIR. The DEIR should be revised to reflect the fact that these recreational facilities attract large recreational vehicles (RVs) and other recreational motorists that would share Copco Road with construction vehicles hauling exported demolition materials and oversized equipment during peak construction season.	The Traffic Management Plan lacks a strategy to address potential conflicts arising from encounters between construction vehicles hauling oversized equipment, RVs, and vehicles pulling trailers. Recommended Measure TR-1 A-1 also neglects consideration of potential oversized construction vehicle/equipment conflicts. While the DEIR states that construction vehicles hauling oversized equipment would operate under wide load restrictions, no detail was provided about what such restrictions would entail. Accordingly, the final version of the Traffic Management Plan and/or mitigation measures should include a strategy for minimizing potential oversize equipment hazards to recreational motorists. Additionally, the DEIR should clarify what the wide load restrictions entail and elaborate on how these restrictions would reduce safety concerns.	

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
Potential Impact 3.22-5 Construction-related activities could potentially substantially conflict with public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities resulting in an increased risk of harm to the public.			
	Section 3.23.5 of the Noise Section of the DEIR states that construction activities associated with dam deconstruction would occur during daytime and nighttime hours. The DEIR does not discuss potential hazards from construction related traffic operating during nighttime hours. Further, Recommended Measure TR-1 A-1 and the Traffic Management Plan do not include any traffic control devices and safety features to mitigate potential traffic safety hazards from truck hauling during nighttime hours. The DEIR should discuss potential safety hazards resulting from construction vehicle travel during nighttime hours. In addition, Recommended Measure TR-1 A-1 and/or the Traffic Management Plan should incorporate nighttime traffic control devices and safety features such as warning lights and markings on construction vehicles.	The Traffic Management Plan is a series of "Recommended Measures" as it was deemed unenforceable by the SWRCB; therefore, the Proposed Project will result in significant and unavoidable impacts. As the lead CEQA agency, the SWRCB can require the preparation of a Traffic Management Plan as a condition of approval of the Proposed Project, in order to mitigate significant effects. The SWRCB should use its authority to require, and ensure, the preparation of the Traffic Management Plan in order to reduce the known significant impacts on the transportation system.	
DEIR SECTION: NOISE			
3.23.5, Potential Impacts and Mitigation			
	Section 3.23.5 of the Noise section of the DEIR states that construction activities associated with the removal of the dams would involve two shifts: a daytime shift and nighttime shift. Presumably, construction vehicles would be required during **both** shifts for transporting waste to off-site landfills and worker commutes. However, construction related peak traffic noise was only evaluated against existing noise levels estimated for the daytime, as provided in Table 3.23-2. Because construction activities are scheduled to occur during nighttime, the DEIR should also evaluate peak construction related traffic noise against existing nighttime noise levels.		
3.23.5, Potential Impacts and Mitigation			
	As described in the Transportation and Traffic section of the DEIR, the Proposed Project involves road, bridge, and culvert improvements. As provided in Appendix K of the 2018 Definite Plan, some of these improvement projects would occur within the vicinity of sensitive receptors. For example, construction access improvements consisting of the installation of a temporary bridge would be established adjacent to the Klamath Ranch Resort Blue Heron RV Park and within 3,400 feet of residences along Tarpon Drive. Construction access improvements consisting of the replacement of the Lakeview Road bridge would be established within 2,600 feet of residences along Tarpon road. Other construction access improvements		

§ 15125. Environmental Setting Issues	§ 15126.2. Consideration and Discussion of Significant Environmental Impacts Issues	§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects Issues	Other issues
	such as pavement rehabilitation that would occur prior to and/or following dam removal activities would also occur in locations near sensitive receptors. The DEIR should evaluate whether construction noise associated with road, bridge, and culvert improvements would result in short-term increases in noise levels affecting nearby residences.		

References

Blackman J, Averyt M, and Taylor Z. 2016. SF_6 Leak rates from High voltage Circuit Breakers – U.S. EPA Investigates Potential Greenhouse Gas Emissions Source.

Burdick SM, Ostberg CO, and MS Hoy. 2018. Juvenile Lost River and Shortnose Sucker year class strength, survival, and growth in the Upper Klamath Lake, Oregon, and Clear Lake Reservoir, California – 2016 Monitoring Report. U.S. Geological Survey Open-File Report 2018-1066, 43pp.

CARB. 2009. California Regional Haze Plan. Available at: https://www.arb.ca.gov/planning/reghaze/final/rhplan_final.pdf. Accessed February 2019.

CARB. 2011. Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. 17 CCR. Section 93105.

CARB. 2014. California Regional Haze Plan 2014 Progress Report.

Cardno Entrix. 2012. Klamath Secretarial Determination Cultural Resources Report. Prepared for Bureau of Reclamation, Mid-Pacific Region, Sacramento, California.

Colorado State University. 2019. Visibility Status and Trends Following the Regional Haze Rule Metrics. Available online at http://views.cira.colostate.edu/fed/SiteBrowser/Default.aspx?appkey=SBCF_VisSum. Accessed on February 11, 2019.

Desjardins M and Markle DF. 2000. Distribution and biology of suckers in lower Klamath reservoirs. 1999 Final Report Submitted to PacifiCorp Portland, OR 97204. Prepared by Oregon State University, Corvallis, Oregon.

Gannett, M.W., K.E. Lite, Jr., J.L. La Marche, B.J. Fisher, and D.J. Polette, 2007. Ground-water hydrology of the upper Klamath Basin, Oregon and California: U.S. Geological Survey Scientific Investigations Report 2007-5050. 84 pp.

Hewitt DA, Janney EC, Hayes BS, and AC Harris. 2018. Status and trends of adult Lost Ricker (*Deltistes luxatus*) and Shortnose (*Chasmister brevirostris*) Sucker populations in the Upper Klamath Lake, Oregon, 2017. U.S. Geological Survey Open-File Report 2018-1064, 31pp.

IPCC. 1997. Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. Reference Manual (Volume 3).

IPCC. 2014. AR5 Synthesis Report: Climate Change 2014.

PacifiCorp. 2004. Cultural Resources Final Technical Report and Associated Confidential Appendices. Klamath Hydroelectric Project FERC No. 2082. Portland, Oregon.

PacifiCorp. 2004. Final Technical Report, Klamath Hydroelectric Project (FERC Project No. 2082), Recreation Resources PacifiCorp, February 2004.

Pearse DE, Donohoe CJ, and JC Garza. 2007. Population genetics of steelhead (*Oncorhynchus mykiss*) in the Klamath River. Environmental Biology of Fish 80:377-387.

Recreational Boating & Fishing Foundation (RBFF) and The Outdoor Foundation (OF). 2013. Special Report on Fishing and Boating 2013. Available online at: https://outdoorindustry.org/resource/2013-special-report-fishing-boating/. Accessed on February 6, 2019.

Recreational Boating & Fishing Foundation (RBFF) and The Outdoor Foundation (OF). 2018. Special Report on Fishing 2018. Available online at: https://outdoorindustry.org/resource/2018-special-report-fishing/. Accessed on February 6, 2019.

Schabetzberger et al. 2003. Prey selectivity and diel feeding chronology of juvenile chinook (Oncorhynchus tshawytscha) and coho (O. kisutch) salmon in the Columbia River plume

The Outdoor Foundation (OF). 2018. Outdoor Participation Report 2018. Available online at: https://outdoorindustry.org/resource/2018-outdoor-participation-report/. Accessed on February 6, 2019.

USFWS. 2013. Intra-service Biological Opinion regarding effects to endangered Lost River and shortnose suckers from authorization of an Endangered Species Act, Section 10(a)(1)(B) Incidental Take Permit to PacifiCorp for Operation of the Klamath Hydroelectric Project on the Klamath River in Southern Oregon and Northern California. U.S. Fish and Wildlife Service, Pacific Southwest Region, Klamath Falls.

U.S. Geological Survey (USGS) Interagency Advisory Committee on Water Data. 1982. Guidelines for Determining Flood Flow Frequency Bulletin #17B of the Hydrology Subcommittee. U.S. Department of the Interior Geological Survey Office of Water Data Coordination Reston, Virginia 22092. March 1982.

Van Gosen BS, Clinkenbeard JP. 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. U.S. Geological Survey Open-File Report 2011-1188.

Vavrinec, J., N.P. Kohn, K.D. Hall, B.A. Romano. 2007. Effects of burial by the disposal of dredge materials from the Columbia River on Pacific razor clams (*Siliqua patula*). Pacific Northwest National Laboratory, Prepared for US Army Corps of Engineers, Portland OR.

WRAP. 2013. Western Regional Air Partnership Regional Haze Rule Reasonable Progress Summary Report.

EXHIBIT “B”

NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

Ashley J. Remillard
D 949.477.7635
aremillard@nossaman.com

VIA FERC ONLINE

November 2, 2018

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Re: Comments re Definite Plan,
Project Nos. 2082-062 (Klamath Project) and 14803-000 (Lower Klamath Project)

Dear Secretary Bose and Chairman McIntyre:

On behalf of Siskiyou County ("County"), we are writing to express our significant concerns regarding the Definite Plan for the Lower Klamath Project ("Definite Plan") that was submitted by the Klamath River Renewal Corporation ("KRRC") to the Federal Energy Regulatory Commission ("FERC" or "Commission") on June 28, 2018. The Definite Plan is intended to support KRRC and PacifiCorp's applications for hydropower license transfer ("Transfer Application") and surrender ("Surrender Application"). Together, these applications propose to transfer, decommission, and remove the four lower Klamath River dams—Iron Gate, Copco I, Copco II, and J.C. Boyle—that comprise the Lower Klamath Project ("Project"). Three of these dams are located within Siskiyou County. The County has, on multiple occasions, expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as socioeconomic impacts on the local community. *See, e.g., PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 28 (Mar. 15, 2018). Unfortunately, the Definite Plan fails to adequately address these concerns.

The Commission's review is currently limited to the pending Transfer Application. *Id.,* ¶¶ at 12, 54. Pursuant to 18 C.F.R. §§ 9.2 and 9.3, a transfer application may be approved upon a showing that the proposed transferee is qualified to hold the license and operate the facility, and that a transfer is in the public interest. Typically, the Commission's inquiry is limited to reviewing the transferee's financial, legal, and technical qualifications to continue to operate the Project. *Id.* Here, however, because the Transfer Application is solely intended to facilitate the ultimate surrender and decommissioning of the Project, the Commission must also consider, based on the Definite Plan, whether KRRC is financially, legally, and technically qualified to effectuate dam removal, including whether it can safely remove Project facilities and adequately restore Project lands. *PacifiCorp*, 162 FERC ¶ 61,236 at ¶¶ 51, 50, 65. Unfortunately, the Definite Plan does not demonstrate that KRRC is qualified to do so. Rather, as described in detail herein, the Definite Plan is fatally flawed, and does not support a conclusion that KRRC will be able to undertake the Project as proposed. Specifically, the Definite Plan is deficient in many respects, including that it (1) proposes an unrealistic schedule, in part because it does not

account for adequate environmental review, (2) underestimates the costs associated with the Project, (3) does not adequately manage risk, (4) misconstrues preemption, and (5) substantively fails to address many critical aspects of the Project, including aquatic resources, terrestrial resources, recreation, and fire management. Accordingly, the County encourages the Commission to deny the Transfer Application because the Definite Plan fails to establish that KRRC is qualified to carry out the proposed Project. The County also reserves the right to provide further comments following any additional submissions by KRRC, following release of any work completed by the Independent Board of Consultants, during any forthcoming formal comment periods, and to present our arguments to the Commission before it makes a determination on the Transfer Application.

1. The Definite Plan's Proposed Schedule is Unrealistic.

Given the proposed drawdown date of January 1, 2021, and given that the end of 2018 is quickly approaching, the Definite Plan proposes a schedule for the Project that is highly unrealistic, particularly from an environmental permitting standpoint. The overly aggressive schedule appears to be driven by KRRC's desire to make the cost of the Project (discussed below) fit within KRRC's budget. Put another way, if KRRC is forced to push out its timeline to accommodate a realistic Project schedule, the cost of the Project will increase to the point where KRRC lacks sufficient funding. This is clear from the Definite Plan, and is one of its most significant flaws.

Examples of the various permitting processes that are not sufficiently underway so as to allow for the proposed timeline include the following:

- **Endangered Species Act ("ESA").** FERC has initiated informal consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service under section 7 of the federal Endangered Species Act ("ESA"), but has not initiated formal consultation. Formal consultation and preparation of a biological opinion takes several months or more. Furthermore, no activity that constitutes an irretrievable commitment of resources can commence prior to completing the consultation process. 16 U.S.C. § 1536(d); 50 C.F.R. § 402.09. If formal consultation is not initiated by early 2019 (and there is no indication in the Definite Plan that this will occur), the ESA process will likely delay the proposed timeline.

- **National Environmental Policy Act ("NEPA").** Further NEPA review, including preparation of a new or supplemental environmental impact statement, is required prior to the Commission making a decision on the Transfer Application. Specifically, the Commission is obligated to commence the NEPA process "at the earliest possible time." 40 C.F.R. § 1501.2(d)(3); *see also* 40 C.F.R. § 1502.5; *Envtl. Def. Fund, Inc. v. Andrus*, 596 F.2d 848, 853 (9th Cir. 1979) ("This court has also noted that delay in preparing an EIS may make all parties less flexible. After major investment of both time and money, it is likely that more environmental harm will be tolerated."). Failing to commence the NEPA review process until the Commission considers the Surrender Application would constitute impermissible project "segmentation." *See Myersville Citizens for a Rural Cmty., Inc. v. F.E.R.C.*, 783 F.3d 1301, 1326 (D.C. Cir. 2015); 40 C.F.R. § 1508.25(a)(1)-(3); *see also* 40 C.F.R. § 1502.4. Furthermore, categorical exclusions to

NEPA review are not applicable, given the "extraordinary circumstances" of this proceeding, as acknowledged by FERC. *See* 40 C.F.R. § 1508.4; 18 C.F.R. §§ 380.4(b)(2)(ii), (iii), (iv), (vi), (vii); *see also PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 51. Accordingly, because further NEPA review must occur, and FERC has not yet commenced this process, additional environmental review will likely result in a delay to the Project timeline.

- **Section 404 of the Clean Water Act ("CWA").** The U.S. Army Corps of Engineers cannot issue a section 404 permit for the Project until after the ESA and NEPA processes are completed. In addition, the Corps must complete its own alternatives analysis under section 404(b)(1). Given the issues identified above, completion of the section 404 permitting process will likely delay the Project timeline.

- **Procurement Process.** Under the proposed project delivery method, KRRC will select the design-builder prior to securing a guaranteed maximum price ("GMP"). Appendix A at 25-28. The designated design-builder will then spend six to nine months studying the Project area before the GMP is determined. *Id.* It is KRRC's position that the GMP will be determined prior to KRRC's acceptance of the Project license. *Id.* The timing of this process is entirely unrealistic. KRRC states that it plans to have the design phase begin in the first quarter of 2019. *Id.* This would mean that the entire procurement process, including a request for qualifications, request for proposals, and contract negotiation, would be completed in roughly four to six months. This is highly unlikely, as most procurements of this magnitude take at least twice that long. This also ignores the permitting processes that are likely going to alter the ultimate scope of the Project, including with respect to avoidance and minimization measures. This is yet another example of how unrealistic the timeline for the Project is, and how it will almost certainly result in cost overruns.

These examples are only a few of the regulatory, permitting, and compliance issues that are likely to result in a delay to the proposed Project timeline. Rather than acknowledge the complexities that are involved in obtaining the required approvals, it appears that KRRC is trying to downplay these complexities, while also creating a false sense of urgency to put pressure on FERC to make a decision regarding the pending applications as quickly as possible. The County encourages the Commission to carefully review all Project components, including costs (discussed below), prior to making any decision on the pending applications. In doing so, it will become apparent that the proposed schedule is unattainable. Accordingly, the County requests that the Commission deny the Transfer Application.

2. There is Inadequate Funding to Carry Out the Project.

KRRC's funding sources are currently finite, with a cap of approximately $450 million. Definite Plan at 299 n. 26. The current estimated cost of the Project (full dam removal) is $397,700,000 (80% probability). *Id.* at 304. Using a Monte Carlo analysis, the Most Probable Low estimated cost is $346,500,000 (10% probability) and the Most Probable High estimated cost is $507,100,000 (90% probability). *Id.* The Most Probable High estimated cost – which KRRC claims would cover the cost of the Project in 90% of the scenarios – exceeds KRRC's

current funding sources by $57 million. This demonstrates that KRRC simply does not have the required funding for the Project.

In addition, other evidence demonstrates that current funding for the Project is inadequate. In October 2012, the "Klamath Dam Removal Overview: Report for the Secretary of the Interior" reported the costs of full dam removal with a 98 percent probability range of $238,000,000 to $493,100,000, and most probable cost of $291,600,000. *See* http://www.narlo.org/klamathdamremoval%20USGS.pdf. In the past six years, the estimated most probable cost has increased by over $100 million ($291,600,000 compared to $397,700,000). If the Project is delayed, for example, by three to six years (which will likely occur, for the reasons set forth above), the cost of the Project can be expected to increase by roughly $50 to $100 million or more, which would exceed KRRC's available funding by a significant margin. Notably, KRRC does not have adequate funding to accommodate ***any*** delay; for this reason alone, its Transfer Application should be denied.

Furthermore, as described below with respect to risk management, it appears that KRRC has not appropriately attributed costs to various risks. As such, it is likely that cost overruns will occur. Indeed, it is well documented that, with respect to large scale infrastructure projects, cost overruns are the rule rather than the exception. In recent years, large projects across asset classes typically experience cost overruns of 80 percent above original estimates. *See* R. Agarwal et al., *Imagining construction's digital future*, June 2016, *available at*: https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/imagining-constructions-digital-future. Likewise, with respect to dam projects specifically, recent studies have found that roughly 75% of projects experience cost overruns, with the average increase as high as 96% of the original cost estimate. *See* S. Lewis, *Study finds big cost overruns on global dam megaprojects*, March 2014, *available at*: https://www.enr.com/articles/2394-study-finds-big-cost-overruns-on-global-dam-megaprojects?v=preview. Thus, given that costs are likely underestimated, and that the timeline is likely overly aggressive (due to, among other things, NEPA processes, ESA permitting approvals, etc.), KRRC's current funding for the Project is inadequate.

The Commission has determined it "require[s] a detailed explanation of how [KRRC] would provide or obtain the funds necessary to decommission and remove the Lower Klamath Project in the event that funds equal to or greater than the maximum cost estimate for the full removal alternative are required." *PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 65. Yet, the Definite Plan does not adequately address potential delays or cost overruns. The Design Contingency is estimated at 10%, and the Construction Contingency is estimated at 20%. Definite Plan at 302. Given that large scale projects typically experience cost overruns of approximately 80-90%, KRRC's proposal is insufficient. Moreover, the only mechanism for addressing cost overruns beyond those contemplated by the Design and Construction Contingency is a meet and confer process through which additional funding sources will be identified and pursued. *E.g.,* Definite Plan Cover Letter, Ex. B (Funding Agreement) at 19. This wholly fails to satisfy the Commission's requirement that KRRC explain how it would obtain additional funding, if necessary.

Finally, the Definite Plan fails to provide adequate funds to address many of the concerns that the County has repeatedly voiced regarding the Project. These concerns include: (1) inadequate funding to compensate the County for the lost revenue stream resulting from a

decrease in property tax revenue; (2) inadequate funding to compensate for Project impacts, including land subsidence, increase of dust in the Project area, and road and bridge improvements; (3) inadequate funding for long-term power replacement stemming from the loss of power generated by the dams; and (4) inadequate funding to compensate landowners for the loss of property/value. KRRC's failure to secure (or even address) funding for these concerns further demonstrates that it has inadequate funding for the Project.

In sum, because KRRC has inadequate funds, including an inadequate contingency plan, to address Project delays or cost overruns, KRRC lacks sufficient funding to carry out the Project. For this reason, the Commission should deny the Transfer Application.

3. The Definite Plan Does Not Adequately Manage Risk.

The Definite Plan's proposed risk management plan is deficient in many respects, including because (1) many components of the plan are uncertain or unknown and (2) many risks are not appropriately characterized in the risk register. For example, the County has identified the following concerns with the proposed risk management plan:

- The Project Insurance Program, which will be an owner-controlled insurance program ("OCIP"), will not be in place until removal work is ready to commence. As such, the precise terms and scope of the insurance program are unknown. This is problematic, as there are no policies and/or precise coverage terms available to review. At a minimum, the Commission should require KRRC to name the County as an additionally insured party under the forthcoming insurance program.

- The Project itself does not appear to have been properly vetted by the industry. The risk management plan states that "risk workshops" will take place at various points throughout the permitting and compliance process, including after the Board of Consultants reviews the Definite Plan. This suggests that, at this time, the industry has not yet reviewed and/or provided input on the proposed Project cost and scope. This seems to deviate from standard industry practice, which would typically involve holding an industry forum early in the process to make sure that a Project proposal is viable. Here, it is unclear whether such industry outreach has occurred. This means that the Project likely includes risks that the industry will find unacceptable. Furthermore, this suggests that the timeline and costs proposed by KRRC are understated and unrealistic.

- The risk register does not appropriately characterize the risks associated with the Project, and does not provide sufficient detail regarding the costs associated with each risk. Of the 103 risks identified, there are zero that are considered to have a 60% or higher probability of occurring. There are only three that have a probability of 40-59% probability of occurring. This seems to inaccurately characterize the likelihood that various risks will occur. For example, Risk No. 35, "Release of hazardous material (other than from construction equipment) to river during construction," is considered "very unlikely" to occur. Given the uncertainties associated with the sediment testing and modeling that has been performed to date, it is apparent that KRRC has downplayed the likelihood of this risk, among others, to a significant degree.

For additional deficiencies in the risk management plan, please see the Technical Memorandum attached hereto as Exhibit 1.

4. The Definite Plan Misconstrues Preemption.

The Definite Plan states that KRRC does not intend to comply with many state and local laws, including California Fish and Game Code sections 1602 and 2081, because they are preempted by FERC's authority under the Federal Power Act. Definite Plan at 38-39. This approach is unacceptable for a number of reasons. To begin with, KRRC as the applicant is not in a position to invoke preemption. The decision whether to do so lies with FERC. And FERC has made it clear that the Project should comply with all practicable state and local legal requirements.

In addition, because the State of California is a party to the Amended Klamath Hydroelectric Settlement Agreement ("KHSA"), KRRC is carrying out that agreement, KRRC officers and board members are appointed by the Governor, and KRRC is reliant on state funding to carry out the proposed action, KRRC is functioning as an arm of the state and engaging in self-governance. As such, its activities are not subject to preemption. *See, e.g., Friends of the Eel River v. N. Coast R.R. Auth.,* 399 P.3d 37 (Cal. 2017).

Further, it is well established that the Federal Power Act does not preempt state and local laws concerning proprietary water rights. Thus, because the County has used reservoir water for firefighting, recreation, and other municipal purposes, dam removal in effect involves a transfer of those proprietary water rights, which precludes preemption. *See, e.g., Cty. of Amador v. El Dorado Cty. Water Agency*, 76 Cal. App. 4th 931, 958 (Cal. 1999).

Finally, while the Federal Power Act occupies the field of hydropower licensing (except to the extent that proprietary water rights are at issue), nothing suggests that FERC's preemptive authority extends to hydropower facility decommissioning. Thus, because decommissioning has a different purpose than licensing, state and local permitting requirements are not preempted by federal law.

In sum, the determination regarding whether the Federal Power Act preempts the application of state law to the proposed action lies with FERC, not KRRC. And FERC has already clarified that KRRC must comply with state and local laws to the extent practicable. Therefore, the Definite Plan should be revised accordingly. Furthermore, the laws that KRRC seeks to circumvent protect, among other things, the critically endangered Lost River sucker and shortnose sucker. The Commission has, in past dam removal cases, and should in this case, require KRRC to obtain all local permits. *See Arizona Public Service Co.*, 109 FERC ¶ 61,036 (2004); *Wisconsin Electric Power Co.*, 94 FERC ¶ 61,038 (2001).

5. The Definite Plan Fails to Adequately Address Critical Aspects of the Project.

There are numerous other Project components that are inadequately addressed in the Definite Plan. Several of these are discussed below.

A. Aquatic Resources

The Definite Plan builds on the population data presented in the 2012 environmental impact statement/report ("EIS/R") relating to spring and fall run Chinook salmon, Coho salmon, and steelhead. The discussion purports to set forth the most recent 10 years of available population abundance metrics. The County's concerns include the following:

- Appendix I addresses dam removal benefits and effects on aquatic resources including fish, but it does not reference or describe the findings included in the final reports from expert panels on Chinook salmon, Coho salmon, steelhead, and other resident fish species. In particular, it does not acknowledge the substantial uncertainty associated with benefits of dam removal for salmonids described in the expert reports. By way of example, the report of the expert panel on Chinook salmon noted that the proposed action is likely to substantially increase the range and abundance of redband, which may increase predation of Chinook salmon, thereby reducing or canceling benefits of the proposed action for Chinook salmon. See Klamath River Expert Panel, Chinook Salmon, Addendum to Final Report at 18. This and other points raised are ignored in the Definite Plan.

- With respect to Lost River and shortnose suckers, KRRC proposes to translocate a minimum of 600 and a maximum of 3,000 fish to Tule Lake. Any remaining sucker populations within the reservoirs will be entirely lost due to dam removal. Given the imperiled status of these species, this proposal is inadequate. Furthermore, the KRRC claims that the lower Klamath sucker populations are not viable or self-supporting. This does not seem consistent with the apparent potential that there are in excess of 3,000 suckers in the lower Klamath reservoirs. There is a paucity of empirical research to confirm (or falsify) the claim that the lower Klamath populations are not viable. Furthermore, the County has been, and continues to be, extremely concerned with the State's passage of AB 2640, which permits the California Department of Fish and Wildlife to authorize the take of suckers resulting from impacts associated with the Project. For further information regarding the County's concerns, please see Exhibit 2, attached hereto.

- The 2012 EIS/R for the Project included a number of measures intended to protect aquatic resources. In the Definite Plan, KRRC indicates it intends to alter some of those measures and abandon others. For example, in the 2012 EIS/R, the Department of the Interior had proposed fall pulse flows to benefit Chinook and Coho salmon, but KRRC does not intend to provide such fall pulse flows. Appendix I at 93. Likewise, the 2012 EIS/R included a telemetry study, sucker salvage, and release into Upper Klamath Lake to benefit the Lost River and shortnose suckers. Appendix I at 122. But KRRC does not intend to implement these measures. Therefore, KRRC cannot rely on the 2012 EIS/R to establish compliance with CEQA and NEPA.

- With respect to spring run Chinook, the Definite Plan appears to concede that the Project will not, in fact, help spring run populations. Specifically, the only remaining spring run populations occur in the Salmon and Trinity rivers. Thus, KRRC acknowledges that "it is likely that some intervention [beyond the Project] will be

necessary to re-establish spring Chinook salmon populations in the Upper Klamath Basin." Definite Plan at 226. This is noteworthy because spring run Chinook appear to be the most imperiled of the anadromous species that will be impacted by the Project, and KRRC effectively concedes that the Project alone will not benefit these populations.

For additional deficiencies in the proposed aquatic resources measures, please see the Technical Memorandum attached hereto as Exhibit 1.

B. Terrestrial Resources

KRRC's proposed measures with respect to terrestrial resources are inadequate. Specifically, the County is concerned that KRRC does not intend to conduct field surveys to determine to what extent listed species will be impacted by the Project. KRRC should be required to conduct such surveys, as this is standard industry practice. In addition, the Definite Plan contains incorrect information regarding threatened and endangered species (presumably because it is based on the 2012 EIS/R, which is outdated). For example, the Humboldt Marten was listed in August 2018, yet the Definite Plan does not list it as a protected species, and does not include any protections for it. This is improper.

For additional details regarding these concerns and others relating to terrestrial resources, please see the Technical Memorandum attached hereto as Exhibit 1.

C. Road Improvements

While the Definite Plan proposes various improvements to address road impacts resulting from the Project, the proposed improvements are inadequate. For example, the County's Public Works Department has expressed significant concern over the use of Copco Road and other access roads before, during, and after construction. Copco Road cannot withstand the transport of the heavy equipment that is needed for dam removal activities. KRRC should be required to perform a comprehensive assessment to determine what improvements will be needed prior to construction, and what repairs will be needed during/after construction. In addition, Copco Road will not be able to be used for heavy equipment access during the winter months, which will need to be (and currently is not) incorporated into KRRC's timeline.

For additional details regarding the County's concerns with respect to proposed road improvements, please see the Technical Memorandum attached hereto as Exhibit 1.

D. Yreka Water Supply

KRRC has proposed three options to replace the City of Yreka's water supply pipeline. The County's concerns with KRRC's proposal are twofold. First, as KRRC acknowledges, the current pipeline is buried in the reservoir bed, and therefore concealed from view. Yet two of the three proposed replacement options involve a new aerial pipeline. As such, at least two of the proposed options are aesthetically inferior to current conditions. KRRC should be required to propose other alternatives that involve a pipeline that is concealed from view. Second, the County is concerned that KRRC ultimately gets to decide which replacement option to select. While KRRC states that it will consult with the City of Yreka, there remains the possibility that

KRRC, due to cost considerations, selects an option that is not acceptable to the City of Yreka. KRRC should be required to obtain concurrence from the City of Yreka before proceeding with a water supply pipeline replacement plan.

E. Recreation Facilities Removal and Draft Plan

Of the 12 recreation facilities currently owned by PacifiCorp within the Project area, KRRC proposes to remove at least nine of them in their entirety. The ultimate disposition of the other facilities is "uncertain." The County's concerns regarding KRRC's proposed recreation plan include:

- KRRC emphasizes that the Project involves the transfer of approximately 8,000 acres of real property located in Klamath County and Siskiyou County to the States of Oregon and California, respectively. This fact, however, does not control the ultimate disposition of that land. While the Amended KHSA states that the acreage is "intended" to be used for "public interest purposes," such as fish and wildlife habitat restoration and enhancement, public education, and public recreational access, there is no guarantee that the acreage will be used in this manner. For various reasons, including that the States will bear the cost of how the land is used, managed, and maintained, it is possible that the land will not be used as "intended" in the Amended KHSA.

- The draft recreation plan is fraught with uncertainty. KRRC has not identified future owners or operators for recreational facilities that could be retained, including Jenny Creek day use area/campground and Fall Creek day use area. *See* Definite Plan at 261-268. Furthermore, while KRRC has engaged in stakeholder outreach regarding recreational proposals, it does not appear to have made much progress selecting and/or incorporating the proposals into the Project. KRRC has identified various screening criteria that it will use to evaluate the proposals, including the criterion that the proposal be "implementable through available funding." Thus, due to cost constraints, KRRC could opt to not include ***any*** of the recreational proposals within the Project scope. It currently appears that KRRC has only committed to providing one whitewater boating area and one access area for fishing. None of the other proposals are currently included within the Project scope, and nothing requires that they be included in the future.

For additional details regarding the County's concerns with respect to the proposed recreation plan, please see the Technical Memorandum attached hereto as Exhibit 1.

F. Downstream Flood Control Improvements

A total of 34 "habitable structures" are located within the preliminary 100-year floodplain for current conditions between Iron Gate Dam and Humbug Creek. These structures will be subject to an increased risk of flooding following dam removal when compared to existing flood elevations. KRRC states that it will "work with the owners of these structures to move or elevate legally established structures, ***where feasible***." Definite Plan at 270 (emphasis added). The County's concerns regarding this section are twofold. First, KRRC is not required to remedy flood control issues if it is not "feasible." It is unclear how such a feasibility determination will be reached, and few details are offered regarding how moving or elevating the structures would occur. Second, KRRC downplays the on-the-ground impacts to the people who reside in the

homes within the newly created floodplain, opting to dehumanize them and characterize their residences as "habitable structures." Among other things, an increased risk of flooding could impact property values and strain the County's flood control resources. None of these issues are discussed or addressed.

G. Fish Hatchery Plan

KRRC proposes to upgrade and fund the operations of the Iron Gate fish hatchery and Fall Creek fish hatchery for a period of eight years following dam decommissioning. Notably, the hatcheries will cease operations and be decommissioned after eight years. This approach is problematic. The fisheries have supplemented the Coho, Chinook and steelhead populations for over half a century. The impact of shutting down the fisheries does not appear to be well understood and is not discussed or addressed in the Definite Plan.

For additional details regarding the County's concerns with respect to the proposed fish hatchery plan, please see the Technical Memorandum attached hereto as Exhibit 1.

H. Cultural Resources Plan

The Definite Plan states that the Klamath River Hydroelectric Project District ("District") is eligible to be listed on the National Registry of Historic Places ("NRHP") for its association with the industrial and economic development of southern Oregon and northern California, but that the California and Oregon State Historic Preservation Offices ("SHPOs") have not concurred with this eligibility recommendation. Appendix L at 16. Concurrence from the SHPOs, and the ultimate status of the District, should be ascertained before dam removal activities commence. In addition, pursuant to section 106 of the National Historic Preservation Act ("NHPA"), KRRC must consult with the SHPOs, tribal historic preservation offices, and other interested parties, to identify historic properties (as defined under section 301 of the NHPA), assess whether and how these properties may be affected by the Project, and formulate a plan to avoid, mitigate, or resolve any adverse effects to cultural and historic sites and resources.

The Definite Plan further states that the NRHP evaluation of traditional cultural properties, sensitive cultural resources, and traditional cultural riverscape was not formalized through consultation with the California and Oregon SHPOs and associated federal agencies, and remains a task for implementation under the Project. Appendix L at 16. This task should be completed well before dam removal activities commence.

For additional details regarding the County's concerns with respect to the proposed cultural resources plan, please see the Technical Memorandum attached hereto as Exhibit 1.

I. Water Quality Monitoring Plan

Water quality monitoring is currently occurring through the KHSA's Interim Measure 15, which requires PacifiCorp to perform monitoring from Upper Klamath Lake to the Klamath River estuary at the Pacific Ocean. Water quality monitoring will continue (although will be modified slightly) until the States of Oregon and California are satisfied that certain water quality standards have been met or three years post-construction, whichever occurs first. The County's concerns with the proposed approach are twofold. First, it is problematic that water quality

monitoring will occur at a maximum for three years post-construction. If further water quality monitoring is needed, there is no mechanism for such monitoring to take place. Second, KRRC cites to various studies to support its conclusion that reservoir sediments in each reservoir are suitable for unconfined, aquatic disposal and that contamination risks from reservoir sediment are unlikely and/or are either lower than with the dams still in place and/or lower than background levels. KRRC ignores, however, that the studies that support this conclusion were performed with inadequate models, and that deeper sediment sampling is needed to better understand the nature of the reservoir sediments.

For additional details regarding the County's concerns with respect to the proposed water quality monitoring plan, please see the Technical Memorandum attached hereto as Exhibit 1, as well as the letters attached hereto as Exhibits 3 and 4, which the County submitted to the California State Water Resources Control Board and the Oregon Department of Environmental Quality in connection with the draft water quality certifications for the Project.

J. Fire Management Plan

In July 2018, the County suffered the Klamathon Fire, which burned over 38,000 acres and destroyed over 82 structures within the County's borders. The Klamathon Fire demonstrates the importance of the local reservoirs not only for firefighting, but also to contain wildfires, preventing the fires from devastating even more of the County's lands. Currently, the proposed fire management plan is deficient in many respects, including because it fails to include a replacement source of water that can be used for aircraft firefighting activities.

For additional details regarding the County's concerns with respect to the proposed fire management plan, please see the Technical Memorandum attached hereto as Exhibit 1.

K. Traffic Management Plan

The current traffic management plan is inadequate to protect the region's citizens, including County residents, from significant disruption during Project implementation. The Definite Plan should be revised to identify, with specificity, best practices with respect to signage, traffic management systems, and dust control.

For additional details regarding the County's concerns with respect to the proposed traffic management plan, please see the Technical Memorandum attached hereto as Exhibit 1.

L. Groundwater Well Management Plan

The Definite Plan's approach to groundwater wells is of particular concern to County citizens that reside near the Copco dams. As drafted, the proposed groundwater well management plan falls short of providing these residents with adequate protections for their groundwater supplies. Among other things, the County requests that: (1) field study results be augmented with groundwater modeling to predict the reservoir drawdown effects on the aquifers within the target area, (2) the impact of the reservoir drawdown on groundwater-fed streams within the target be addressed, as these streams support irrigation and presumably an aquatic ecosystem, and (3) the numerous other springs (besides the spring mentioned near Copco Lake) be catalogued and monitored.

6. CONCLUSION

For the foregoing reasons, the County encourages the Commission to deny PacifiCorp and KRRC's Transfer Application. Please do not hesitate to contact us with questions.

Sincerely,

Ashley J. Remillard
Nossaman LLP

AJR:

SWCA
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

TECHNICAL MEMORANDUM

November 2, 2018

Natalie Reed
County of Siskiyou
P.O. Box 659
Yreka, CA 96097

Re: Review and Comment on the Definite Plan for the Lower Klamath Project

---

DEFINITE PLAN

The Definite Plan provides the general overview of the proposed Project (Project). SWCA's specific comments on the Definite Plan are provided below and organized by appendix, chapter, and section.

APPENDIX A: RISK MANAGEMENT PLAN

The Risk Management Plan provides an analysis of the foreseeable risks associated with the Project and describes risk factors, insurance and bonding, strategy for procurement and contracting, and includes a Design and Construction Risk Register which describes perceived risk, the probability of occurrence, and the Overall Risk Rating.

Attachment A. Design and Construction Risk Register. Based on the dam removal experience of SWCA staff, the following risk evaluations appear flawed with respect to the probability of risk and the overall risk rating.

- **Risk 32 - Copco Lake reservoir rim or local slope failure along access roads**. The probability of risk is assessed as low (10–19 percent [%]). However, the impact and probability of slope failure along the access roads should be higher, thus increasing risk weight. Also, the overall rating should be higher than "medium" based on observations of the Condit Dam Decommissioning and Removal Project (PacifiCorp 2012).
- **Risk 41 - Unanticipated non-burial related cultural resources discovered during drawdown**. The risk is assessed as low. However, this risk should be assessed as high, because the area along the historic river channel is culturally rich. (PacifiCorp 2004).
- **Risk 43 - Unanticipated human burial sites discovered during drawdown.** The probability of only 10–19% risk of uncovering human burial sites is not accurate, given the known numbers of burial sites. There is also a substantial chance that there are unknown burial sites that could be discovered during drawdown. (PacifiCorp 2004), For example, an unknown burial site was uncovered at the Tulana Farm Restoration Project at the mouth of the Williamson River in 1998 after a period of high wind and heavy wave action exposed a burial site on the shore of Upper Klamath Lake (F. Shrier, pers. comm. 2018).
- **Risk 45 - Reservoir drawdown impacts water quality more severely than anticipated causing project shutdown.** The assessed overall risk rating of "medium" is not accurate, given the 1.2–2.9 metric tons of sediment present in the reservoirs. The Condit Dam Removal Project (PacifiCorp 2012) and the Marmot Dam

Removal Project (Major, et al. 2012) released a fraction of the projected sediment loads on the Klamath River, but the water quality impacts persisted for months after the initial breach.

- **Risk 46 - Reservoir drawdown results in greater than anticipated erosion at bridges or along channel creating passage barriers.** Based on observations at the Condit Dam Decommissioning and Removal Project, the assessed overall risk of "low" is not accurate for bridges or channel erosion, since both occurred after reservoir drawdown for the Condit Dam. (PacifiCorp 2012). Channel erosion continued along the White Salmon River for more than a year after drawdown, causing the need to stabilize the slopes adjacent to the Northwestern Lake Bridge supports (PacifiCorp 2012). As noted in Appendix K (Road and Bridge Structure Data and Long-Term Improvements) some bridges may require replacement after reservoir drawdown. This indicates that the risk rating should be higher.

- **Risk 48 - Reservoir dewatering and subsequent operations have greater than anticipated effect on groundwater wells**. A probability of 10-19% and an overall rating of "low" is unrealistic and shows an unwillingness to appreciate the true risk.

- **Risk 69 - Limited recovery of fish species of concern.** A risk probability of "unlikely" and an overall rating of "low" is not adequate given the environmental issues identified in Appendix I (Aquatic Resources) and Appendix M (Water Quality Management Plan). The severity of potential impacts to all aquatic species and the overall risk rating should be "high."

APPENDIX D: DAM STABILITY ANALYSES

Appendix D is a technical memorandum containing a dam stability analysis for the J.C. Boyle Dam and Iron Gate Dam prepared by AECOM staff in June 2018. Based on the technical memorandum, the Klamath River Renewal Corporation (KRRC) developed a drawdown plan, which is set forth in Chapter 4 of the Definite Plan. AECOM's recommendations are set forth below, as well as SWCA's concerns regarding the recommendations and the ultimate drawdown plan.

AECOM recommendations

1. Based on the analyses, reservoir drawdown could be as high as 10 feet per day. However, AECOM recommends that reservoir drawdown be 5 feet per day, except as noted for J.C. Boyle Dam below. Appendix D at 8.

2. It is our understanding that the demolition of J.C. Boyle Dam includes removal of concrete stoplogs within two diversion culverts. The removal of the concrete stoplogs (likely by blasting) will result in drawdown of approximately 10 feet for the first culvert and 8 feet for the second culvert within less than 24 hours. Although we conclude that the J.C. Boyle Dam will perform satisfactorily under these rapid drawdown conditions, AECOM recommends a hold period of one week be implemented between removal of the stoplogs from the first culvert until the stoplogs from the second culvert are removed to allow for pore pressure dissipation. *Id.*

3. The analysis results indicate that no slope instability would result during reservoir drawdown. However, there is a potential for shallow slumping along the upstream embankment slopes due to the potential strength loss of surficial materials during the drawdown. Therefore, AECOM recommends frequent visual inspection during the reservoir drawdown process. If any shallow slumping is observed, riprap can be placed to provide additional resistance. *Id.*

4. AECOM recommends that instrumentation be installed to monitor the upstream slopes during reservoir drawdown for dam removal. The types of recommended instrumentation include survey monuments, inclinometers, and piezometers. Daily readings are recommended to closely monitor if there are any unanticipated slope movements or pore pressure accumulation. AECOM recommends that the instrumentation be installed the year prior to reservoir drawdown. The piezometers would be monitored during reservoir drawdown to confirm that the transient phreatic surface within the upstream shell of the dam falls as the reservoir elevation drops. *Id.*

Concerns regarding drawdown plan

- While the Klamath River Renewal Corporation (KRRC) has adopted recommendation #2, above, the values given for the amount of water leaving J.C. Boyle Reservoir are provided in cubic feet per second. Definite Plan at 106. This should be revised to reflect the cubic feet per day standard that is used in other parts of the analysis.

- As a precautionary measure, dump trucks loaded with riprap should be onsite at the Iron Gate and J.C. Boyle Dams in case shallow slumping is observed.

APPENDIX E: RESERVOIR RIM STABILITY ANALYSES

Chapter 2. J.C. Boyle Reservoir. For J.C. Boyle Dam, KRRC concluded that "deep-seated large landslides are less likely." Appendix E at 16. Therefore, stability analyses for the rim of J.C. Boyle Reservoir are deemed not required to support the preliminary design. *Id.* This is improper; such analyses should be required.

Chapter 3. Copco No. 1 Reservoir. During rapid drawdown, the stabilizing effect of the Copco Dam Reservoir on the slope is absent but the pore water pressures within the slope remains high in materials with low permeability. *Id.* at 34. The high pore pressures in combination with the lack of the stabilizing effect from the reservoir can lead to significantly reduced slope stability. *Id.* However, in Table 3.6, the stability analyses for 17 of the 24 segments are listed as "In Progress." A complete reservoir rim stability analysis is essential to evaluate environmental impacts of the project, especially at Copco Reservoir, where there is an existing population and infrastructure. This analysis should be performed.

3.4.5 Future Analysis and Investigations.

- Referring to Table 3.6, the report provides:

> While the analyses discussed above are still preliminary, the results indicate that certain areas or segments may have the potential for slope instability as a result of the project activities. Some of these segments are below the current reservoir water surface, and slope failures within these segments would not impact existing roads or private property/structures. KRRC does not propose additional field investigations for these segments.

Id. at 38. If there are known areas of potential slope instability, KRRC should conduct further analysis to ensure the safety of residents and infrastructure. The conclusion presented is counterintuitive in suggesting that despite the potential for slope instability, there will be no impact.

- KRRC also concludes that:

> Some larger deeper slides are also possible within Copco No. 2 reservoir where submerged higher bluffs exist along the original Klamath River channel. These shallow slides and potential slides along the river channel pose no threat to roads or private property; however, KRRC will monitor these areas during and post-drawdown to assess any potential impact to existing cultural resources.

Id. This paragraph mentions "larger deeper slides" but then refers to "shallow slides." Again, the conclusion that roads or property will not be affected is not supported by the facts presented. KRRC should explain why the larger slides and shallow slides pose no threat to roads or property.

- KRRC acknowledges that about 3,700 feet of slopes along Copco Road, and about 2,800 feet of slopes adjacent to personal property, may be at risk due to slope failures, including up to 8 parcels with existing habitable structures. *Id.* at 38-39. KRRC states it will "consider" the following actions to offset potential impacts:

  1. For segments along Copco Road:

     a) Re-align of road segment away from rim slope.

     b) Engineer structural slope improvements (e.g. drilled shafts or other structural elements that could be installed to resist slope movement).

  2. For segments adjacent to property or structure:

     a) Move structure or purchase property.

     b) Engineer structural slope improvements (e.g. drilled shafts or other structural elements that could be installed to resist slope movement).

  However, due to the severity of the potential impacts to homeowners, KRRC should commit to more than just "considering" these actions. KRRC should meet with the Siskiyou County Board and the affected Siskiyou County (County) residents to discuss potential compensation and mitigation for losses.

- The evaluation concludes that "based on the low permeability of the diatomite, changing the drawdown rate would have minimal impact on the rapid drawdown stability analysis results. Therefore, KRRC is not proposing to limit the drawdown rate for drawdown of Copco No. 1 Reservoir." *Id.* at 39. However, this planned drawdown rate for the Copco No. 1 reservoir is inconsistent with the recommendation in the Appendix D, Dam Stability Assessment, which clearly states that the drawdown procedure for Iron Gate and J.C. Boyle dams should proceed cautiously and, at the very least, not exceed 5 feet per day. Appendix D at 8. An analysis supporting the differing drawdown rates across all four reservoirs should be provided.

APPENDIX F: RESERVOIR DRAWDOWN ANALYSIS

Chapter 2. J.C. Boyle Reservoir. KRRC states that the suspended sediment concentrations under the new proposed drawdown procedure are not expected to differ from those previously estimated in the U.S. Bureau of Reclamation's 2012 Detailed Plan (about 0–8 mg/l). This assumption is likely inaccurate, given that observations of the Condit Dam Decommissioning and Removal Project (PacifiCorp Energy 2012) indicate suspended sediment concentrations exceeding 10,000 mg/l. Appendix F at 17. Page

Chapter 3. Copco 1 Reservoir. KRRC states that the sediment concentrations under the new proposed drawdown procedure are not expected to differ from those previously estimated in the U.S. Bureau of Reclamation's 2012 Detailed Plan (about 0–200 mg/l). *Id.* at 72. However, it is more likely that suspended sediment concentrations will

exceed the 10,000 mg/l concentrations observed during the Condit Dam Removal (PacifiCorp 2012) since over 100 years of sediment has accumulated in the bottom of the reservoir. For example, the Marmot Dam Removal Project in Oregon, a much smaller project than the proposed Project, also produced suspended sediment concentrations exceeding 10,000 mg/l (Major et al. 2012).

Chapter 4. Iron Gate Reservior. KRRC states that the sediment concentrations under the new proposed drawdown procedure are not expected to differ from those previously estimated in the U.S. Bureau of Reclamation's 2012 Detailed Plan (about 0–1,000 mg/l). Appendix F at 125. However, sediment concentrations are likely to exceed 10,000 mg/l (PacifiCorp Energy 2012; Major et al. 2012) because all four dams will be removed simultaneously and the Iron Gate Dam monitoring site will measure the sum total of suspended sediments from all four dam sites.

Chapter 5. Flood Frequency Analysis. The drawdown analysis also evaluates flood frequency at each project to illustrate the range of possible peak flows that could occur. However, there is no discussion of the graphs presented and whether the graphs illustrate peak flows after dam removal, during dam removal, or both.

Appendix E should provide greater explanation of the model output and the results under the best and worst water year scenarios.

APPENDIX H: RESERVOIR AREA MANAGEMENT PLAN

The 2018 Reservoir Area Management Plan is intended to replace the 2011 Plan. The 2018 Plan includes updated goals and objectives, new information learned from other dam removal and restoration projects completed since 2011, and project-related details and information not available in 2011.

The Restoration Plan proposes a 10-year restoration timeline which includes 1–2 years for preparation (seed collecting and propagation, invasive plant control, etc.) and five years for plant establishment and monitoring after dam removal. Appendix H at 50. Restoration actions detailed in the Plan include manual sediment removal and grading, enhancement of longitudinal connectivity and habitat quality of tributaries (including removal of fish passage barriers), development of floodplain features (wetlands, floodplain swales, and side channels), channel complexity/floodplain roughness with the addition of large wood habitat features, and revegetation. Sediment jetting with a barge-mounted water jet is proposed during reservoir drawdown to maximize sediment erosion at Copco 1 and Iron Gate Reservoirs, and to reconnect tributaries with the river channel, as needed. SWCA's concerns regarding the plan include the following:

5.5.1 Reservoir Drawdown Sediment Evacuation. KRRC will designate culturally sensitive areas to avoid during grading. Appendix H at 60. Additional surveys should be performed during drawdown to identify cultural resources that may have been previously covered by the reservoir.

5.5.2 Tributary Connectivity. KRRC will inventory barriers to volitional fish passage and rectify as many of these as funding allows. *Id.* at 61. This section should disclose how much funding is anticipated to be allocated for this purpose, and the typical cost for those activities.

5.5.6 Revegetation.

- KRRC should coordinate with the County's Agricultural Department regarding re-vegetation concerns, including with respect to the spread of noxious weeds as a result of dam removal. The County's Agricultural Department is responsible for noxious weed control and has concerns over spreading of seeds and plants through sediment release, and moving seeds outside of normal river banks during flood events. KRRC should address these concerns.

- Both temporary and permanent irrigation will be installed in the riparian bank zone. *Id.* at 80. The plan should address how long the irrigation will remain in place or what criteria would be used to evaluate removal.

Chapter 6. Monitoring and Adaptive Management. Monitoring will be performed using visual inspections, physical measurements, ground photo points, aerial photography, and LiDAR (sediment monitoring). The monitoring plans for sediment stabilization/evolution and volitional fish passage include protocols and indicators, but they lack performance criteria by which success or failure can be measured. *Id.* at 106-108. The plan should include such performance criteria.

APPENDIX I: AQUATIC RESOURCES MEASURES

2.2.1 Fisheries Benefits of Recent Dam Removals in the Pacifc Northwest.

- KRRC anticipates that the Project will replicate the benefits of other dam removal projects in the Pacific Northwest. However, studies of the benefits of other dam removal projects lack an evaluation of long term results that only several generations of salmon and steelhead returns can verify. Further, the river conditions at the other dam removal sites discussed in Chapter 2 of the Definite Plan are far superior to the existing conditions of the Klamath River. Superior riverine conditions at the other project locations include pH levels that are near neutral (versus 9.0 or higher on the Klamath River); normal to high dissolved oxygen levels; little to no irrigation withdrawals (Rogue River excepted); clear, cold water without uncontrolled algae blooms; and glacial or spring-fed flow that provides cool and consistent flow during the warm, dry months.

- The Klamath River, upstream of Keno Dam, will not support adult salmon and steelhead survival unless these adults are transported past Keno and Upper Klamath Lake to the Williamson and Sprague Rivers (Huntington et al. 2006). Unless very significant improvements are made to allow fish access and suitable habitat is restored, the chance for successful reintroduction is very low. In addition, success is even more unlikely without strains of salmon and steelhead that 1) can survive the warmer temperatures and poor water quality, 2) return to spawn when the best possible river conditions exist, and 3) outmigrate as juvenukes from the upper watershed before river conditions reach lethal levels in the late spring (Huntington et al. 2006).

Section 2.2 Anticipated Project Benefits on the Klamath River Basin Aquatic Resources.

- This section states that Iron Gate Dam blocks access to the Upper Klamath River for three species of salmon, Pacific lamprey, and freshwater mussels. Mussels are not known to migrate upstream, so they should be removed from this statement.

- This section states that the Project will make miles of historic habitat accessible to anadromous salmonids and lamprey. Table 2-3 cites studies indicating that thousands of salmon and steelhead were historically produced in the upper Klamath River and its tributaries. However, the analysis overlooks two key elements of historical habitat:

  1) Lower Klamath Lake (which was filled and reclaimed by the US Bureau of Reclamation in the early 1900s) historically stored water from high flows, then released cool water during the rest of the year into the mainstem of the Klamath River, thus maintaining an environment that promoted rearing of juvenile salmon and allowed safe access for returning adults.

  2) The vast network of irrigation canals in the Upper Klamath River did not exist when the salmon and steelhead runs were prolific, so there is a large amount of water that no longer flows into the Klamath River. The irrigation return flows that occur now bring warmer water, suspended sediment, and a litany of agricultural chemicals that were not present in the historical habitat.

- This section mentions benefits to fall Chinook salmon only. The Definite Plan appears to concede that the Project will not in fact help spring run populations. Specifically, the only remaining spring run populations occur in the Salmon and Trinity rivers. Thus, KRRC acknowledges that "it is likely that some intervention [beyond the Project] will be necessary to re-establish spring Chinook salmon populations in the Upper Klamath Basin." Definite Plan at 226. This is noteworthy because spring run Chinook appear to be the most imperiled of the anadromous species that will be impacted by the Project, and KRRC effectively concedes that the Project alone will not benefit these populations.

- This section does not reference or describe the findings included in the final reports from expert panels on Chinook salmon, coho salmon, steelhead, and other resident fish species. In particular, it does not acknowledge the substantial uncertainty associated with benefits of dam removal for salmonids described in the expert reports. By way of example, the report of the expert panel on Chinook salmon noted that the proposed action is likely to substantially increase the range and abundance of redband, which may increase predation of Chinook salmon, thereby reducing or canceling benefits of the proposed action for Chinook salmon. *See* Klamath River Expert Panel, Chinook Salmon, Addendum to Final Report at 18. This and other points raised are ignored in the Definite Plan.

2.2.2 Water Quality and Water Temperature. KRRC claims that the Project will result in improved water quality, but does not provide a citation that substantiates that claim. The citations provided only address water temperature. KRRC should provide a citation supporting the conclusion that the Project will result in improved water quality and provide a summary of the cited source.

2.2.3 Hydrograph. This section claims that after dam removal, the resulting flow will mimic the natural hydrograph. Unfortunately, the "natural hydrograph," without a functioning Lower Klamath Lake and with extensive irrigation withdrawals, will likely have lower flows in the summer and early fall than the naturally occuring hydrograph prior to dam construction. The resulting lower flows and higher temperatures may create a barrier to adult fish migrating upstream. This issue should be addressed in the analysis.

2.2.4 Disease. With respect to fish disease, is not clear that the benefits of the Project outweigh the potential risks.

- This section states that the project is expected to reduce disease impacts to adult and juvenile salmon related to *Ceratanova shasta* (*C. shasta*) and *Parvicapsula minibicornis*. Both of these pathogens are myxozoan parasites that share vertebrate and invertebrate hosts. This section anticipates that the Project will reduce disease by restoring natural channel-forming processes. However, the Definite Plan also states that the existing pools in the Klamath River dowstream of Iron Gate Dam, will be filled in with cobble and silt, and that high flow events will eventually scour out the silt and some of the cobble, but the river will not likely return to pre-removal conditions. The existing deep pools harbor cooler water and act as refugia for migrating adults during the warmer months. Since the prevalence of infection is tied to warmer water and to crowded conditions for fish (i.e. with less cool water refugia, adults are likely to crowd into limited space), it seems more likely that disease issues will persist. In addition, *C. shasta* is prevalent in the creeks and rivers upstream of Upper Klamath Lake, so it will be difficult to control the persistence of myxozoans and eliminate the detrimental effects of infestation. (Huntington et al. 2006). At best, resistent strains of salmon and steelhead may eventually evolve, which could take a long time and countless generations before adaptation, if it were to occur at all, could come to fruition. (Huntington et al. 2006).

- Although the Project is expected to reduce fish disease because infected carcasses will be washed downstream, elevated flows may also redistribute the diseased spores throughout a longer reach of the Klamath River. The analysis should address this possibility.

2.3.1 Suspended Sediment Effects: This section anticipates that the Project will release 1.2–2.9 million metric tons of fine sediment downstream of Iron Gate Dam over a two year period. Appendix I at 31. This estimate is likely optimistic, since it assumes that much of the reservoir sediment will remain in place and stabilize. With projected suspended sediment concentrations initially exceeding 1,000 mg/l for weeks, KRRC acknowledges the negative impacts on aquatic organisms will be potentially lethal to salmon eggs and migrating adults, mussels, and lamprey adults and ammocoetes. The duration of high suspended sediment concentrations depends on how much reservoir sediment is initially flushed from each reservoir and the water year conditions that are exhibited during the dam removal year. Therefore, the adverse impacts could last for weeks, as this section projects, or they could persist for months, even years. Therefore, the suspended sediments analysis should also assess the worst-case-scenario and possible negative impacts that have been associated with other dam removal projects, such as Marmot Dam and Condit Dam, where more reservoir sediment flushed downstream through erosion and bank sloughing. (PacifiCorp Energy 2012).

2.3.2 Bedload Effects. The project is expected to initially release high amounts of sand. The proposed mitigation measure is to release flushing flows of 6,000 cubic feet per second (cfs) for days or even weeks. This is not realistic because 6,000 cfs exceeds the peak annual flow for 13 of the past 17 years. Depending on the water year, it may not be feasible to provide the proposed flushing flows. An alternative should be identified to compensate for sand deposition if adequate flows are not available to flush the sand downstream.

2.3.3 Dissolved Oxygen. With the release of reservoir sediments that are rich in organic matter, KRRC recognizes that there will be "depressed" levels of dissolved oxygen due microbial breakdown of the organic material in the sediment (known as biological oxygen demand [BOD] or chemical oxygen demand [COD]). This will make parts of the Klamath River uninhabitable for mobile species, and lethal for aquatic resources that are not mobile such as incubating eggs, freshwater mussels, lamprey ammocoetes, aquatic insects, etc. There should be a thorough analysis performed on the possible extent of BOD/COD and the resulting effects on the aquatic species in the project area.

2.4 Effects Analysis. KRRC should analyze the short- and long-term effects rather than rely on data compiled for the 2012 EIR/EIS. Given the uncertainty expressed over the effects of suspended sediment loads and low dissolved oxygen levels, and other concerns expressed in the comments above, the potentially catastrophic impacts to aquatic species should be analyzed thoroughly.

Chapter 3. Mainstem Spawning:

- KRRC proposes a new measure that is a revision of Aquatic Resources measure 1 from the 2012 EIS/R for mainstem spawning. KRRC has concluded that the updated measure is necessary to offset the short-term effects associated with dam removal on spawning Chinook and coho salmon, and upstream migration of adult steelhead and lamprey. The measure includes the following actions:

  1) Evaluate tributary-mainstem confluences in the eight-mile reach from Iron Gate Dam to Cottonwood Creek for two years. If a tributary blockage forms, then efforts will be implemented to remove the passage barrier(s).

  2) Evaluate spawning habitat of the hydroelectric reach (Iron Gate Dam to Keno Dam) and newly accessible tributaries. The action identifies a target are of 44,100 square yards of mainstem spawning gravel area and 4,700 square yards of tributary. If this area is not realized following dam removal, then gravel augmentation and retention efforts will be initiated.

  - Action 1 is inadequate because there is no provision to extend monitoring efforts beyond two years. KRRC should be willing to include monitoring and corrective actions until the upstream former reservoir areas are deemed stable.

- With respect to Action 2, only measuring spawning area and supplying gravel to match that total area is inadequate because ideal spawning habitat conditions require more than just suitable gravel. The key elements selected for spawning by anadromous fish include depth of gravel, adequate flow over the surface of the redd and a suitable amount of intergravel flow or upwelling to maintain water quality conditions for incubating eggs and fry. It is possible that, despite efforts to supply 44,100 square yards of gravel, some or all adult salmon may completely bypass augmented gravel sites. It is also possible that even if adults use the augmented gravel sites, eggs or fry may not survive in those redds in the absence of other necessary conditions. The action should address all factors affecting spawning in the mainstem and tributaries, not just gravel supply.

- KRRC also acknowledges here that the Project will result in adverse impacts to approximately 179 tributary-spawning steelhead redds. Appendix I at 36.

The proposed augmentation of seven cubic yards per compensatory mainstem redd is identified as 21 square yards at a depth of one-foot. *Id.* at 39. Typical depths for adult spring Chinook range from 0.8 to 3.3 feet (Moyle 2002), so applying gravel at a depth of just one foot may not be adequate.

3.2 Summary of affected species, project benefits and effects, recent fisheries literature, the 2012 EIS/EIR, and the proposed measure.

- Species identified in the proposed measure (as identified in the 2012 EIS/R) include coho salmon, Chinook salmon (spring and fall run), steelhead (summer and winter run), and Pacific lamprey. Table 3.4 is included below and summarizes the effects on each species. KRRC anticipates that most adults and redds will be protected from the impacts of dam removal since coho salmon typically spawn in the tributaries. As some coho salmon spawn in the mainstem of the Klamath River, KRRC estimates a loss of about 13 redds or 0.7–26 percent of the coho salmon population. This constitutes "take" of the threatened population of coho salmon and their associated critical habitat, which would seem to require a jeopardy determination with respect to those fish under the federal and California ESAs.

Table 3-4 2012 EIS/R anticipated effects summary for migratory adult salmonids and Pacific lamprey

Species	Life Stage	Likely Effects	Worst Effects
Coho Salmon	Adult Spawning	Loss of 13 redds (0.7-26%)[1]	Loss of 13 redds (0.7-26%)[1]
Chinook Salmon - Fall	Adult Spawning	Loss of 2,100 redds (8%)[1]	Loss of 2,100 redds (8%)[1]
Steelhead - Summer	Migrating Adults	No anticipated mortality	Loss of 0-130 adults (0-9%)[1]
Steelhead - Winter	Migrating Adults	Loss of up to 1,008 adults (14%)[1]	Loss of up to 1,988 adults (28%)[1]
Pacific Lamprey	Adult Migration and Spawning	High mortality (36%)[2]	High mortality (71%)[2]

Source: USBR and CDFG 2012
[1] Range of potential year class loss based on the average number of redds associated with the evaluated population(s).
[2] The 2012 EIS/R predicted Pacific lamprey mortality based on mortality models developed for suspended sediment impacts to salmonids. Model output did not include the number of predicted Pacific lamprey mortalities.

- Suspended sediment is predicted to cause 100 percent mortality of fall Chinook salmon eggs and fry spawned prior to the reservoir drawdown. That amounts to approximately 2,100 redds based on past redd survey data. Female Chinook fecundity ranges from 4,900 to 5,500 eggs per female (Moyle 2000), so the projected loss (using

5,200 eggs as the median) is expected to be 10,920,000 eggs, about 5 million smolts (50 percent egg-to-smolt mortality) and about 50,000 adults (1 percent return) prior to in-river harvest and prespawn mortality. These mortality rates are assumed based on returns to other basins but most basins that have a mix of natural- and hatchery-produced Chinook salmon have survival rates that are similar to these within a very tight range.The physiological effects of high suspended sediment concentrations on salmon, steelhead and lamprey include stress and respiratory impairment, damaged gills, reduced tolerance to disease and toxicants, and direct mortality. The severity of these effects is influenced by the concentration and duration of suspended sediments, water temperature, water flow, and disease. KRRC assumes that the adverse effects of high suspended sediment concentrations following dam removal will be reduced by the species' tendency to avoid poor water quality conditions and adapt to migrate and spawn in areas other than the mainstem, citing an example from the Elwha Dam Removal Project where adult salmon that primarily spawned in a tributary moved into the mainstem to spawn in greater numbers in the years following dam removal. Appendix I at 49. However, this possibility rests on the assumption that enough alternative habitat with higher water quality conditions exists in tributaries downstream. While that may be the case on other rivers undergoing dam removal where the water quality conditions are superior to conditions in the Klamath River, the amount of suitable habitat in this instance is limited to a few tributaries that already have water quality issues related to flow and high temperature. It is likely that, although adults may survive the Klamath River conditions during the drawdown process, overcrowding into the remaining habitats will result in indirect population losses such as increased infection by pathogens, injuries and death related to competition for desirable spawning space, and reduced survival of eggs that are laid in less desirable locations or exposed by superimposition of redds.

- Juvenile salmon egg incubation for coho salmon is 8-12 weeks (Moyle 2002). If drawdown occurs between January and mid-March, increased turbidity will negatively affect redds in the mainstem. The most recent redd survey data for coho salmon was reported by Magneson and Gough (2006), who found only 38 coho salmon redds in the mainstem Klamath River downstream of Iron Gate Dam between 2001 and 2005 in the reach from Hornbrook to Happy Camp. Coho redd distribution should be updated and referenced in the Definite Plan.
- Chinook redds seem to be at greater risk. Appendix I at 38. If high sedimentation and discharge is expected from drawdown, this could scour redds and/or fill in redds, effectively wiping out a substantial portion of Chinook redds in the mainstem. Lamprey ammocoetes can move downstream during high discharge if necessary (Grabowski 2010; USFWS 2010).
- When drawdown water is released, flows should be ramped down in a manner to prevent and reduce stranding of ammocoetes and fishes residing in the sediment downstream.

Chapter 4. Juvenile Outmigration. This chapter discusses planned trapping and hauling efforts for approximately 500 coho salmon juveniles before reservoir drawdown between Iron Gate Dam and the Trinity River, which is approximately 150 river miles. It proposes actions to relocate rescued fish to "constructed off-channel ponds," monitor tributary-mainstem connectivity for two years, and monitor water quality in 13 tributaries (e.g., water temperature and mainstem suspended sediments). Appendix I at 53.

4.1.1 Action 1: Mainstem Salvage of Overwintering Juvenile Salmonids.

KRRC states that they will sample up to 15 sites in the approximately 150 river mile stretch between Iron Gate Dam and the Trinity River one year prior to reservoir drawdown. KRRC will then undertake an overwintering yearling coho salmon relocation effort in December prior to drawdown. KRRC expects to encounter less than 500 overwintering coho salmon juveniles, citing Hillemeier et al. 2009. Appendix I at 54. The 500 coho salmon estimate is not reasonable because Klamath River coho salmon fecundity is 1,400-3,000 eggs. The Hillemeier et al 2009 study only accounted for two years of information, with results differing between years (i.e., capture frequency increased in year 2). It is unclear how KRRC got this number from the study. Morever, the study area was downstream of Iron Gate Dam. Thus, it is not reasonable to assume that the results accurately predict the

number of coho salmon that will actually be encountered. Therefore, the measure should explain the actions that will be taken if more than 500 coho salmon juveniles are encountered.

- Further, the coho salmon juveniles in December will be getting ready to smolt, and therefore will be larger fish and good swimmers. Juvenile salmon are adapted to find refugia from unfavorable conditions in the mainstem (e.g., increased flows and turbidity) and can seek out velocity refuges (Weber et al 2013), and it may not be advisable to trap and haul these fish.
- The Definite Plan should state how homing, imprinting, and straying will be affected by trap and haul efforts. Relocating fish to different streams and letting them volitionally complete smoltification potentially jeopardizes runs that returned to these different natal streams. If there are only 500 coho salmon juveniles expected to be rescued in the approximately 150-river mile reach between Iron Gate Dam and the Trinity River, this possibility is of serious concern.

4.2.2 Anticipated Project Effects on Measure Species.[1]

- Table 4-2 sets forth substantial percentages of juvenile fish that will be harmed by the Project. These would seem to require a jeopardy determination with respect to those fish under the federal and California ESAs.
- The Definite Plan should include monitoring measures for sites upstream of Iron Gate Dam where volitional passage is supposed to create habitat and introduce salmon back into the reaches that have not had access for the past 100 years.

Chapter 5. Fall Pulse Flows. This chapter indicates that KRRC intends to abandon the 2012 EIS/R measure relating to fall pulse flows intended to benefit Chinook and Coho salmon. Appendix I at 93. Therefore, KRRC cannot rely on the 2012 EIS/R to establish compliance with NEPA and CEQA.

Chapter 6. Iron Gate Hatchery Management. The objective of the Iron Gate Hatchery Management measure is to address Project drawdown and the effects on hatchery Chinook and coho smolts that will be released from the hatchery during the spring of the reservoir drawdown when periods of high suspended sediment concentrations are expected. The 2012 EIS/R included two potential actions to reduce impacts to hatchery fish: delay the release of smolts until the sediment loads diminish, or transport the smolts downstream to reaches of the Klamath River less affected by the sediment loads. Appendix I at 105. KRRC selected the first option, to delay smolt releases, and to rely on water quality monitoring stations downstream of the hatchery to inform the California Department of Fish and Wildlife when it is safe to release the smolts.

- The Iron Gate Hatchery release numbers consist of 75,000 yearling coho salmon, 900,000 yearling fall Chinook salmon, and 5.1 million fall Chinook salmon smolts. Since the Detailed Plan recognizes that releasing these fish during the drawdown would be lethal due to the high suspended sediment concentrations and low dissolved oxygen, the Definite Plan proposal is to delay smolt and yearling releases to a "limited extent." Appendix I at 107. This plan fails to consider that the water supply, which currently comes from Iron Gate Reservoir, will not be suitable during the smolt and yearling releases. Alternative water may or may not be available from Bogus Creek, but that seems to be the only reasonable source identified. The Definite Plan should consider Bogus Creek, or other available sources, as a potential replacement of the Iron Gate Reservoir water supply to the hatchery, rather than just note the uncertainty of the future source. The future source of the water supply is critical to the operation of the hatchery.

[1] The phrase "Measure Species" is unclear. *See also* Section 8.2.2. We suggest revising this to clarify intent (e.g., protected species).

- The proposal to delay hatchery fish releases also assumes that water quality will be sufficient for fish releases in time for the smolts to be released before they reverse smolting and switch to residential mode, which is a very stressful process that often results in coho salmon mortality.

- In light of these concerns, KRRC should thoroughly analyze and/or model the full range of potential water quality conditions to determine this strategy's chance of success.

Chapter 7: Pacific Lamprey Ammocoetes.

- KRRC has abandoned the measure in the 2012 EIS/R designed to reduce impacts to Pacific lamprey. There is no management plan to salvage lamprey ammocoetes because KRRC determined that impacts would be minimal. Appendix I at 112. The Definite Plan states that there is low abundance in the downstream reach from Iron Gate Dam to the Scott River. *Id.* at 114. This decision was also influenced by low site fidelity and lack of genetic diversity. *Id.* at 115.

- Given that the Project is expected to result in high mortality for Pacific lamprey ammocoetes and that the lamprey is an important cultural resource for tribes, a more extensive analysis is warranted. In particular, the plan should consider flow management to reduce the potential for stranding lamprey ammocoetes and other fishes nearing the completion of drawdown.

- It should be acknowledged that lamprey ammocoetes are not sessile and are capable of relocating. (USFWS 2010).

Chapter 8. Suckers. KRRC completed studies to determine the abundance and genetics of Lost River and shortnose suckers in the Klamath Basin. Reservoirs and stream sections will be sampled. PIT tagging will be implemented during the studies prior to dam removal. River sampling will be conducted in 2019 and 2020, and reservoir sampling will be conducted in 2018 and 2019. KRRC proposes to rescue and relocate 100 adult Lost River suckers and 100 shortnose suckers from each reservoir for a total of 600 fishes. Appendix I at 119. SWCA's concerns are set forth below.

- The measure indicates that no more than 3,000 fish will be relocated. *Id.* at 120. Therefore, any remaining sucker populations within the reservoirs will be entirely lost due to dam removal. Given the imperiled status of these species, this proposal is inadequate.

8.1.2 Action 2: Sucker Salvage and Relocation. Rescued suckers will be relocated to isolated waterbodies to "ensure hybridized suckers do not mix with sucker populations designated as recovery populations in Upper Klamath Lake." However, hybridization of suckers was common from captured juvenile suckers in Upper Klamath Lake. (Burdick et al 2015). Hybridization is thought to occur between the different Klamath River suckers. Results from genetic analysis should be used to determine if fish should be relocated to Tule Lake as proposed.

- Additionally, in 2010, suckers were removed from Tule Lake and relocated to Upper Klamath Lake due to concerns over Tule Lake water levels. (Courtner, Vaughan, and Duery 2010). Tule Lake is the target receiving water for these relocated fish from the Klamath River reservoirs. If dry conditions exist during the rescue, this would pose the same risk of relocated fish dying due to water conditions in Tule Lake. This measure would also indicate that in the future, suckers should not be salvaged in Tule Lake and relocated to Upper Klamath Lake, even though this action was already taken in 2010. There is no evidence that Klamath small-scale suckers are present in Tule Lake. If this is the case, then the introduction of "hybrids" rescued from the Project reservoirs potentially jeopardizes the population of suckers in Tule Lake.

- Endangered Species Act regulations for protection of hybrids is somewhat unclear. The Intercross Policy, while not formally adopted or redacted, provides the U.S. Fish and Wildlife Service and National Marine Fishery Service flexibility in dealing with hybridized animals (Frey 2015). The Definite Plan states that "the proposed relocation of rescued suckers to isolated waterbodies is to ensure hybridized suckers do not mix with sucker populations designated as recovery populations in Upper Klamath Lake." In other words, the

introduction of "hybridized" suckers that are said to be partly Klamath small-scale suckers into Tule Lake would preserve the recovery population of the Lost River sucker and shortnose suckers in Upper Klamath Lake. However, this contradicts actions taken in 2010 by the Bureau of Reclamation when "hybridized" suckers from Tule Lake were introduced into Upper Klamath Lake. Appendix I at 119.

8.2.2. Anticipated Project Effects on Measure Species. This section claims that the lower Klamath sucker populations are not viable or self-supporting. *Id.* at 122. This does not seem consistent with the apparent potential that there are in excess of 3,000 suckers in the lower Klamath reservoirs. *See id.* at 120. There is a paucity of empirical research to confirm (or falsify) the claim that the lower Klamath populations are not viable.

- Further, the anticipated loss of Lost River and shortnose suckers reservoir populations disclosed in Table 8-1 should be considered "take" under the Endangered Species Act. The State of California has chosen to view the fish located in the Project reservoirs as a different population that is not covered by Endangered Species Act. The lower reservoir fish are a segment of the whole population that left the upper watershed to colonize downstream. There is no provision in the Endangered Species Act to make a separation.

8.2.4 KRRC's and the ATWG's Review pf AR-6 for Feasibility and Appropriateness. The 2012 EIS/R included a telemetry study, sucker salvage, and release into Upper Klamath Lake to benefit the Lost River and shortnose suckers. Appendix I at 122. But KRRC does not intend to implement these measures. *Id.* at 123-125. Therefore, KRRC cannot rely on the 2012 EIS/R to establish compliance with CEQA and NEPA.

Chapter 9. Freshwater Mussels. The Definite Plan will address salvage and relocation of freshwater mussels. As stated in the Definite Plan, mortality of translocated mussels is fairly high (Cope and Waller 1995). Appendix I at 133. There is insufficient data addressing how mussels will respond to drawdown. The Definite Plan states that "more consideration must be given to habitat characterization at both the source and translocation sites." *Id.* Data is not yet available from the pilot project to investigate key factors important for survival. Therefore, the consideration of impacts to freshwater mussels and potential mitigation measures is inadequate, and more information on impacts to freshwater mussels is needed before proceeding with the Project.

APPENDIX J: TERRESTRIAL RESOURCES MEASURES

Appendix J only considers a few threatened and endangered species that may be impacted by the Project. Since the findings in the 2012 EIR/EIS, other species that may be impacted by the Project have been listed under the federal and California ESAs.

- KRRC should reevaluate the list of threated, endangered, and special status species on the federal, state, and local level, and perform the baseline studies/habitat surveys for the species in order to adequately evaluate the impacts of the Project.
- For example, the Humboldt Marten (*Martes caurina humboldtensis*) was listed as endangered under the California Endangered Species Act by the California Department of Fish and Wildlife (CDFW) in August 2018. Based on a desktop literature search, we have found that since the biological surveys were completed in 2002–2004, additional studies on habitat, range and population have occurred for the Humboldt Marten. *See* the Arcata Fish and Wildlife Office Report, *Species Assessment for the Humboldt Marten (Martes Americana humboldtensis)* (Hamlin et al 2010). (https://www.fws.gov/arcata/es/mammals/HumboldtMarten/documents/Humboldt%20Marten%20Species%20Assessment%20Sep2010.pdf). To adequately evaluate the impacts to this species, the KRRC should conduct an approved protocol level survey within and surrounding (within the recommended buffer) prior to the release of the CEQA/NEPA documents.

- Much of the evaluation on terrestrial species in the Definite Plan is based on information from the 2012 EIR/EIS. Much of that data was obtain prior to 2012 and is therefore outdated by scientific standards. The analysis should be based on updated studies, surveys, and literature.
- KRRC should undertake pre-construction surveys within the project area for all threatened, endangered, or special status federal, state, and local species. Due to the time lag between surveys and field studies occurring at this time (for the Definite Plan), and future construction, species may move into previously unoccupied areas. Therefore, pre-construction surveys should be added to the avoidance and minimization measures for all species mentioned in Appendix J.

Chapter 1. Northern Spotted Owl ("NSO") Measures. The Definite Plan states that a "desktop evaluation" was used to determine whether NSO activity centers exist within the Project area. Appendix J at 11. This is not a reliable method to make such a determination. It is also premature for KRRC to conclude that "the Project will not result in NSO habitat modification" until sufficient field studies have been conducted within and surrounding the disturbance areas. *Id.* at 14. Field surveys should also be conducted during breeding seasons to identify breeding and nesting sites.

Chapter 2. Bald Eagle and Golden Eagle Measures. The surveys that the Definite Plan proposes are too narrow in scope. Specifically, KRRC proposes limiting surveys to viewshed areas within 0.5 mile of the limits of work. *Id.* at 23. Surveys should be conducted beyond the 0.5-mile radius, including up to two miles, to identify eagle activity centers in those areas so as to enable KRRC to develop avoidance or mitigation measures to protect the species. In addition, KRRC notes that, "as there is high potential that bald eagles had already fledged prior to the survey date, some active nests may have been missed, especially if eagles used alternate or unknown nests." *Id.* at 25. Therefore, additional field surveys should be conducted to determine whether additional active nests exist within the disturbance and potential disturbance areas. Lastly, the area within two miles of the J.C. Boyle, Iron Gate and Copco Reservoirs were not surveyed. No scientific explanation is provided for why these areas were not surveyed. *Id.* at 28.

Chapter 3. Special Status Wildlife Species Measures. The data relied upon to develop special status wildlife species measures are from 2001-2003 and highly outdated. *Id.* at 31. Additional surveys should be conducted to determine if other special species occurrences exist within the relevant areas.

- Further, KRRC's 2018 general wildlife survey area, which is limited to within 0.25 miles of the dams and structures to be removed, should be expanded. *Id.* at 32. This survey area does not include downstream impacts, which will be significant, especially for species that utilize emergent wetlands and riparian areas. There are wetland and riparian areas that will be altered by changing water flows and sedimentation. These areas are currently not evaluated in the survey area, and therefore cannot be adequately evaluated for impacts.
- Amphibians and reptile surveys should be conducted not only within the current survey area, but also downstream. The downstream survey area should include all areas of the river that will be impacted by changes in water flow and sedimentation depositions. Sediment load and changes in the hydrology will change the streambank and emergent wetland areas. These areas need baseline data on the species that currently occupy, or could occupy this habitat, in order to adequately evaluate impacts of the Project.
- Some of the proposed avoidance and minimization measures do not appear consistent with best species management practices. For example, KRRC proposes placing traffic cones or other exclusionary devices in nests or on net platforms to prevent nesting in the year of construction. *Id.* at 37. Such deterrence activities may also deter the birds from returning in future years, which would therefore disrupt the birds' nesting habits long-term. In addition, the Definite Plan does not include adequate protections for four wildlife species that are protected by the California ESA ("CESA"). The tricolored blackbird and willow flycatcher are both listed under CESA. *Id.* at. 36. And the Cascades frog and footfill yellow-legged frog are both candidates for listing under CESA. *Id*. at. 35. As described above, KRRC does not intend to comply with the provisions of CESA on the grounds that it is preempted and, therefore, is intending to harm these species without undertaking a jeopardy determination and fully mitigating the harm as state law requires.

Chapter 4. Bats Measures. KRRC's surveying efforts appear inadequate. Surveys have been canceled, and others are uncertain. *Id.* at 64. KRRC should commit to performing adequate surveys to determine the impact of the Project on the relevant bat species. KRRC's obligations with respect to implementation of the bat measures are also subject to a determination of "feasibility." Appendix J at 66. Few details are provided with respect to how KRRC will make such a determination.

Chapter 5. Special Status Plants Measures. KRRC's proposed remedial measures appear inadequate. Specifically, if special status plants cannot be avoided during construction, KRRC intends to evaluate the potential for seed collection and propagation at local nurseries for replanting and/or as part of a seed mix to be used during restoration activities. Appendix J at 76. It is unclear whether these are viable options, or whether the harm to the special status species will be significant.

Chapter 6. Vegetation Communities and Wetlands Measures. The Definite Plan does not appear to set forth avoidance, mitigation, and offset measures to mitigate the potential effects of the Project on, among other things, wetland habitat used by migratory birds.

APPENDIX K: ROAD AND BRIDGE STRUCTURE DATA AND LONG-TERM IMPROVEMENTS

Page 1: Copco Road from Ager Road to Daggett Road is noted to be in poor condition; however, no upgrades to the roadway are proposed. Copco Road in this location has no shoulder, is poorly striped, and has deteriorating pavement. KRRC should clearly identify the need for repaving to avoid any potential issues to haul routes and residents. Repaving the roadway will also alleviate potential safety concerns.

Page 1: Copco Road from Daggett Road to Copco Access Road is noted to be in poor condition; however, no upgrades to the roadway are proposed. Copco Road from Daggett Road to Copco Access Road is an unimproved, very narrow roadway that has many low and overhanging trees that could obstruct trucks. Copco Road will need upgrades, widening, and tree trimming to accommodate haul trucks. KRRC should clearly identify improvements to be made prior to construction.

Page 2: Copco Road between Copco 1 Access Road to Copco Bridge will not be used for dam or powerhouse removal. KRRC should place signs to indicate that no haul trucks shall proceed past Copco Access Road, or make improvements to the roadway to allow for construction traffic and ingress/egress of residents.

Page 4: Drawdown and post-project flows have the potential to cause erosion at the abutments or central pier of Copco Road Bridge. KRRC should further evaluate the need to reconstruct the Copco Road Bridge prior to Project implementation. If the Copco Road Bridge fails, residents on the north side of Copco Reservoir will only have one ingress and egress route (Copco Road, which is poorly maintained).

APPENDIX L: CULTURAL RESOURCES PLAN

Chapter 2. Plan Overview. The Area of Potential Effects (APE), for the purposes of compliance with the National Historic Preservation Act, has yet to be defined. Appendix L at 15, 29. The plan states that the APE will be identified based on the historic built environment evaluation report to be prepared by KRRC, but does not provide any information regarding the timeline. *Id.* at 55-56.

6.2.4 General Inventory and Resource Recordation Methods. Archaeological survey methods used by KRRC include pedestrian survey transects spaced 15 meters apart however, they should also include subsurface testing in areas considered high probability for the presence of cultural resources. *Id.* at 50.

KRRC's archaeological inventory methodology does not include subsurface testing in high probability areas for the presence of cultural resources within the APE. Pedestrian surveys in areas with low mineral soil visibility or buried archaeological resources are not effective without systematically sampling for buried, near-surface deposits. Accordingly, inventory methodology should include subsurface testing.

Chapter 7. Resource Evaluation. Previously identified cultural resources within the Area of Direct Impact (ADI) that are unevaluated or "potentially eligible" for the National Register of Historic Places will require testing and evaluation fieldwork. Site-specific methods should be developed. *Id.* at 55.

KRRC will conduct an evaluation of historic built environment resources and prepare two reports (one for each state) that will identify the APE, evaluate the resources, assess project effects, and make recommendations to avoid and minimize effects and mitigate adverse effects. These recommendations for mitigation should be included in the Cultural Resources Plan.

Chapter 8. Management Plans and Agreement Documents. Many of the items within the Cultural Resources Plan are still being developed by the KRRC and lack sufficient detail. The Plan states that the Historic Properties Management Plan (HPMP) will include protocols for cultural resource identification and evaluation during dewatering activities and effect avoidance, minimization, and mitigation for historic properties; however, these protocols are still unknown and lack detail. *Id.* at 61. The Inadvertent Discovery Program, the Cultural Resources Monitoring Plan, and the Looting and Vandalism Prevention Plan also lack sufficient detail. *Id.* at 62-65. The Cultural Resources Plan should be updated upon completion of all analyses and include all minimization and mitigation measures.

APPENDIX M: WATER QUALITY MONITORING PLAN

2.1.2 Contaminants in Sediment. The Water Quality Monitoring Plan states that the sediments in each reservoir are suitable for unconfined, aquatic disposal and that the contamination risk is unlikely. Appendix M at 16. This statement is contrary to information provided in the 2012 EIR/EIS, which states:

> Results indicate that sediment in all three reservoirs exceeded freshwater ecological SLs for nickel, iron, and 2,3,4,7,8-PECDF (Table C-5). Sediment in J.C. Boyle Reservoir also exceeded freshwater ecological SLs for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, dieldrin, and 2,3,7,8-TCDD (Table C-5). Several pesticides and semi-volatile organic compounds (SVOCs) were not detected in the reservoir sediments; yet, the reporting limits were above the freshwater SLs, so other lines of evidence were used to asses these compounds. Similarly, human health SLs were only exceeded for arsenic and nickel, pentachlorophenol (in the case of J.C. Boyle Reservoir), and some legacy pesticides (e.g., 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, dieldrin, see Table C-6). Several dioxin-like compounds were detected and exceeded the ODEQ Bioaccumulation SLVs (Table C-6).

The 2012 EIR/EIS also states the following regarding fish tissues, which has significant impacts for human fish consumption:

> In a screening-level study of potential chemical contaminants in fish tissue in Keno, J.C. Boyle, Copco, and Iron Gate Reservoirs, and in Upper Klamath Lake, PacifiCorp analyzed metals (i.e., arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc), organochlorine (pesticide) compounds, and PCBs in largemouth bass (*Micropterus salmoides*) and black bullhead catfish (*Ameiurus melas*) (PacifiCorp 2004c). PacifiCorp reported that, in general, contaminant levels in fish tissue are below both screening level values for protection of human health (USEPA 2000) and recommended guidance values for the protection of wildlife (MacDonald 1994). Exceptions to this include measured fish tissue levels of total mercury in samples from

> Copco 1 and Iron Gate Reservoirs as compared to the wildlife screening level of 0.00227 µg/g and measured fish tissue levels of arsenic (<0.3 ug/g) that PacifiCorp indicated may equal or exceed the toxicity screening level for subsistence fishers (0.147 µg/g) in samples of largemouth bass from J.C. Boyle, Copco 1, and Iron Gate Reservoirs. Subsequent reanalysis of the PacifiCorp mercury tissue data indicates that all tissue samples exceed the most protective wildlife screening level of 0.00227 ug/g, samples from Keno, J.C. Boyle, Copco 1, and Iron Gate Reservoirs exceed the screening level for subsistence fishers (0.049 µg/g), and samples from Copco 1 and Iron Gate Reservoirs exceed the screening level for recreational fishers (0.4 µg/g) (Table C-9).

Because fish tissues analyzed in the Klamath basin show bioaccumulation at levels that cause concern, this indicates that toxins are present in either the sediments or the water column, and that these toxins are present in consumable fish tissue. It is possible that the lab analyses did not use detection limits that were low enough to thoroughly characterize suspected toxins, or that the sediment grab samples were not sufficiently random to represent the actual conditions in the reservoir sediments that have resulted in fish tissue bioaccumulation.

2.1.3 Algae in the Klamath Hydroelectric Reach. Regarding algae contamination in the reservoirs and downstream of Iron Gate Dam, the plan states that

> [t]he relative significance of contributions of the reservoirs and upstream sources [of algae toxins] is complex and disputed. The KRRC does not state a position on the relationship or relative significance of such sources. To the extent that these reservoirs are a source, the Project will remove the source.

Appendix M at 16. Upper Klamath Lake and Lake Euwana are major sources of algae and the toxins that they produce. These sources should be included in the analysis of the effects of dam removal on algae contamination.

KRRC will develop a sediment characterization plan in consultation with the regulatory agencies for the states of Oregon and California. *Id.* at 25. The details of the sediment characterization plan need to be developed and published with sufficient time for public review and comment.

APPENDIX N: GROUNDWATER WELL MANAGEMENT PLAN

- The technical rationale for limiting the Groundwater Well Management Plan (GWMP) target area (i.e., the database search area) to a 2.5 mile radius from the project reservoirs should be explained. Appendix N at 15.
- The location of the shared spring water supply near Copco Lake is missing from Figure 2 in Appendix N.
- A conceptual hydrogeologic model should be developed for the target area with regard to the anticipated aquifer characteristics within the target area, and the source zones for the current 124 wells, e.g., overburden versus fractured rock. After this has been accomplished, the GWMP should be revised with the sentinel well design, taking into account the potential impact of the reservoir drawdown on the current well water supply sources. Multi-level sentinel wells will likely be required, which have not been accounted for in the GWMP. SIR 2007-5050 and SIR 2012-5062 are publications prepared by the U.S. Geological Survey, and are references that should be cited within the GWMP.
- The field study results associated with outreach to landowners and residents should be augmented with groundwater modeling to predict the reservoir drawdown effects on the aquifers within the target area. Appendix N at 16.

2.6 Proposed Actions.

- Without any evidence of excessive pumping by a well owner, there should be no question that a well with diminished water supply in the target area following dam decommissioning is a direct result of the reservoir drawdown. Therefore, the phrase “and that these circumstances are attributable to reservoir removal” should be struck.
- The analysis should address the impact of a future drought on the current water supplies. SIR 2007-5050 has identified a 10-foot decline in groundwater levels in portions upper Klamath River basin.
- In addition to the water supply wells and springs, the analysis should address the impact of the reservoir drawdown on groundwater-fed streams within the target, as these streams support irrigation and presumably an aquatic ecosystem. The US Fish and Wildlife and National Marine Fisheries Service issued biological opinions in 2001 that anticipate a reduction in surface water withdrawals in the upper Klamath River basin.
- Besides the one spring mentioned near Copco Lake, there are numerous other springs that need to be catalogued and monitored within the GWMP. Appendix N at 15.
- The nature of the Sky Lakes Fault Zone as a hydrogeologic barrier of flow was mentioned within the 2012 EIS/EIR, but is not addressed by the GWMP.
- The GWMP should also address the following nearby community water supplies:
    - The City of Yreka currently receives its municipal water supply from Fall Creek.
    - Water supply in Hornbrook, Copco Village, and Beswick comes from private groundwater wells.
    - Water supplies in unincorporated Klamath County come from private groundwater wells and public water companies, and some water is supplied by Klamath Falls.
    - Water supplies come from Merrill City groundwater wells on Front Street. Klamath Falls Water Division is responsible for providing water to more than 40,000 residents in the urban area (total storage capacity of 16 million gallons) from groundwater wells.

- The City of Chiloquin supplies water to all city residents as well as some residents that are outside of the city but within the urban service area from a single groundwater well.

APPENDIX O1: FIRE MANAGEMENT PLAN

- The Fire Management Plan (FMP) notes that helicopter water tanks will be filled along portions of the Klamath River deeper than three feet after the drawdown of the reservoirs. Appendix O1 at 41.The FMP states that aerial analysis shows deep pools with suitable conditions for helicopter filling exist near the three reservoirs. *Id.* It should be noted that helicopters may not be able to fill their water tanks in the vicinity of the post-drawdown-reservoirs due to the canyons that will develop around the rim of the existing reservoirs and downstream. Helicopters require a relatively wide, flat topography in order to draft water safely. Alternatively, it is possible that many of the existing pools will fill with silt and sediment released during dam removal. Under either alternative, helicopter round-trip travel time may be higher than the 15 minutes estimated due to the helicopters having to fly far upstream or downstream of the existing dam facilities to find suitable filling conditions.

- The FMP proposes dry hydrants as water supply infrastructure for post-removal firefighting. *Id.* In addition to dry hydrants, the FMP should also include other permanent sources of water that can be used for aircraft firefighting activities. This is especially critical due to the possibility that river conditions will be inadequate for water tank filling post-drawdown, as noted above. The FMP should identify permanent water sources (such as dip tanks) that will be strategically placed along the Klamath River corridor to support aircraft firefighting activities. The permanent water sources could be filled with Klamath River water extracted via the proposed dry hydrants. Given the devastating wildfires that have occurred, and will likely continue to occur, throughout the Project area, every precaution should be taken to mitigate fire risk.

APPENDIX O2: TRAFFIC MANAGEMENT PLAN

Chapter 1. Need for Traffic Management Plan. Table 1.1-1 (Primary Access Route Summary) identifies Patricia Avenue as a local access road; however, Patricia Avenue is not mentioned as an access road or haul route of significance in Appendix K, Road and Bridge Structure Data and Long-term Improvements. Appendix O2 at 10. KRRC should indicate the condition of the road and any proposed improvements during or after construction in Appendix K.

1.2 Management Strategies.

- "Traffic Safety Effects" is proposed as a management strategy. *Id.* at 11. However, there are no specific examples of where traffic safety effects would be implemented. Please identify traffic safety hazards in Appendix O2 and/or Appendix K, and identify the best practice signage, traffic management systems, and dust control practices to be implemented at each location.

- Siskiyou County Sheriff's Department has expressed concern over access for law enforcement and emergency services during times of heavy traffic during construction, as well as concerns about access during flooding events during and after removal. The Traffic Management Plan should address these issues.

APPENDIX O3: HAZARDOUS MATERIALS MANAGEMENT PLAN

- The list of structures identified at each of the dam locations appears to be thorough. Appendix O3 at 9. Table 1 lists the anticipated types of hazardous wastes that may be present at each of the dams and includes several

unknowns regarding contaminated soils (from exterior painting with lead-based paint [LBP]), polychlorinated biphenyl (PCBs) (even though equipment tested negative, there may still be residual concentrations present), and mercury containing equipment/fixtures (e.g., switches). *Id.* at 10.

- KRRC will update the Hazardous Materials Management Plan (HMMP), as appropriate, following the planned Phase I ESA visits and interviews and the Phase II Site Investigation, if needed after the Phase I ESA. *Id.* at 9. As indicated in the SWCA Technical Memorandum dated April 19, 2018, review of the data from the previous sediment characterization effort suggested that additional assessment may be warranted to include: additional deep-sediment samples; additional Total PCB analyses, especially from the deeper sediments; and additional polycyclic aromatic hydrocarbon (PAH) analyses so that the detection level, at a minimum, falls between the threshold effect concentration (TEC) and predicted environmental concern (PEC) values, instead of greater than the PEC levels. This additional assessment presumably would be part of the Phase II ESA effort that would be needed to further characterize the potential waste materials and associated hazardous or toxic constituents.

- The sections of Chapter 1 describe for each dam the types of waste materials expected to be generated during dam decommissioning, and include inventories of hazardous materials provided by PacifiCorp. Hazardous and toxic constituents are listed for several of the waste materials that will be generated. However, some waste materials are omitted. The following hazardous and toxic constituents may be associated with these potential waste materials:

    - **Asbestos** – Asbestos-reinforced cement was developed in the early 1900s and was used extensively throughout the United States from the early- to late-1900s. About 24 manufacturers offered asbestos-containing cement products, with an asbestos content of 2–10% by weight. Asbestos improved the cement's performance, helped reduce cracking, and was added to the mixture of cement that was used in a variety of industrial, commercial, and residential construction products. Asbestos is an incredibly strong substance. When added to building materials and other heavy-duty items, it helps to create goods that are very tough and durable, holds up well under most any type of weather conditions (cold or heat), and withstands water and fire. These properties made asbestos-reinforced cement/concrete ideal for water conveyance pipes, dams, or other concrete structures. In addition to ceiling and floor tiles, roofing and siding materials, and electrical wire insulation, asbestos may be present in concrete pipes (water conveyance structures at the dams and/or smaller diameter pipe used with septic tank/drainfield systems), other concrete structures, electrical and thermal insulation panels, gaskets, and packings. Demolition and removal of these structures/materials could generate dust and airborne asbestos fibers, and should be tested for asbestos as part of the Phase II Environmental Site Assessment (ESA) sampling activity and managed accordingly.

    - **Heavy metals** – Heavy metal-containing paints or lead-based paints (LBP) on exterior surfaces and equipment may have contaminated adjacent soils during painting and maintenance activities. LBP was routinely used for interior and exterior surfaces during the earlier operational periods of the dams. Soils near painting and maintenance operations should be tested as part of the Phase II ESA sampling activity to assess their hazardous or toxic characteristics.

    - **Insulators** – Where high mechanical strength is required, a porcelain rich in alumina is used to manufacture the insulator. During demolition, the insulators may be broken, releasing high-alumina content dust. The types and quantities of power line insulators should be assessed for alumina content and potentially hazardous or toxic alumina concentrations in the dust that may be generated during demolition activities.

- The Hazardous Materials Management Plan describes what kinds of waste will be removed at each dam location, but lacks protocol for evaluating the characteristics of the waste. The plan should include the hazardous materials testing procedures to be implemented at each dam removal location.

APPENDIX O4: EMERGENCY RESPONSE PLAN

1.5 Hazardous Material Spill Management. The Spill Prevention and Response Plan fails to address the following issues:

- Spill supplies and equipment used to clean and contain spills;
- Storage location of spill supplies and equipment;
- Secondary containment requirements for construction equipment and materials; and,
- Waste storage and disposal procedures.

These issues should be addressed in the Spill Prevention and Response Plan.

APPENDIX O5: NOISE AND VIBRATION CONTROL PLAN

The Noise and Vibration Control Plan describes the measures to be implemented to minimize the effect of noise and vibration on sensitive receptors. Appendix O5 at 9. However, the plan does not include any noise or vibration monitoring procedures to confirm compliance with established thresholds. KRRC should indicate whether such monitoring procedures will be included in the final Noise and Vibration Control Plan.

APPENDIX Q: DRAFT RECREATION PLAN

2.3.2. New Facilities and Plans. The Draft Recreation Plan includes the additional recreational mitigation measures proposed by Siskiyou County and SWCA during the April 5, 2018 meeting with KRRC and AECOM. However, the plan does not identify organizations or agencies that will be responsible for the operation and maintenance of the existing and new proposed facilities (with the exception of BLM-managed facilities).

Chapter 3. Recreation Opportunity Evaluation and Screening. This chapter outlines criteria that will be used evaluate consistency of each recreation project with the Recreation Objectives (section 1.3). To satisfy Criteria C and D, there must be an entity or entities responsible for operation and maintenance of the recreational facilities after KRRC surrenders its license, and the project must not generate increased demand that would make it difficult to manage. Appendix Q at 41. Therefore, the plan should provide that entities that will assume responsibility for the recreation projects should be determined prior to the evaluation process.

REFERENCES

Burdick, SM., Elliot, DG., Ostberg, CO., Conway, CM., Dolan-Caret, A., Hoy, MS., Feltz, KP., and KR Echols. 2015. Health and Condition of Endangered Juvenile Lost River and Shortnose Suckers Relative to Water Quality and Fish Assemblages in Upper Klamath Lake, Oregon, and Clear Lake Reservoir, California. US Geological Survey Open-File Report 2015-2017, p. 56.

Courter, I., Vaughan, J., and S. Duery. 2010. 2010 Tule Lake Sucker Relocation Project. Prepared for the US Bureau of Reclamation, Klamath Basin Area Office.

Frey, O. 2015. When Science and the Statue Don't Provide an Answer: Hybrid Species and the ESA. Available at: https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1324&context=delpf.

Grabowski, SJ. 2010. Response of Pacific Lamprey Ammocoetes and Macropthalmia to Several Physical and Behavioral Guidance Devices. US Bureau of Reclamation, Boise, ID.

Huntington, C., E. Claire, F. Espinosa Jr, and R. House. 2006. Reintroduction of Anadromous Fish to the Upper Klamath Basin; an Evaluation and Conceptual Plan. Prepared for the Klamath Tribes and Yurok Tribes. p. 63.

Major, J.J., O'Connor, J.E., Podolak, C.J., Keith, M.K., Grant, G.E., Spicer, K.R., Pittman, S., Bragg, H.M., Wallick, J.R., Tanner, D.Q., Rhode, A., and Wilcock, P.R. 2012. Geomorphic response of the Sandy River, Oregon, to removal of Marmot Dam: U.S. Geological Survey Professional Paper 1792. p. 64.

Moyle, P. B. 2002. Salmon and Trout, Salmonidae - Chinook Salmon, (Oncorhynchus tshawytscha) in Inland Fishes of California. Los Angeles, California: University of California Press, pp. 251-263.

PacifiCorp. 2004. Cultural Resources Final Technical Report and Associated Confidential Appendices. Klamath Hydroelectric Project FERC No. 2082. PacifiCorp, Portland Oregon.

PacifiCorp. 2012. Post-Reservoir-Dewatering Report. Condit Hydroelectric Project Decommissioning. FERC Project No. 2342.

USFWS. 2010. Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (Entosphenus tridentatus). https://semspub.epa.gov/work/10/100016741.pdf

Weber, C., Nilsson, C., Lind, L., Alfredsen, KT, and LE Polvi. 2013. Winter Disturbances and Riverine Fish in Temperate and Cold Regions. Bioscience 63(3):199-210.

COUNTY OF SISKIYOU
Board of Supervisors

P.O. Box 750 ▫ 1312 Fairlane Rd
Yreka, California 96097
www.co.siskiyou.ca.us

(530) 842-8005
FAX (530) 842-8013
Toll Free: 1-888-854-2000, ext. 8005

June 06, 2018

Assemblyman Jim Wood, District 2
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0002

Subject: Opposition – AB 2640 Protected species: Lost River sucker and shortnose sucker limited take authorization

Dear Assemblyman Wood:

The Siskiyou County Board of Supervisors is writing this letter to express our opposition of *AB 2640 Protected species: Lost River sucker and shortnose sucker limited take authorization*; which would permit the California Department of Fish and Wildlife to authorize the take or possession of suckers resulting from impacts associated with the removal of the four Lower Klamath River dams.

In late May 2018, the Klamath Tribes filed a lawsuit in the United States District Court for the Northern District of California seeking to shut down the Bureau of Reclamation's Klamath Project, which supplies water to over 200,000 agriculture acres and hundreds of family farms in northern California and southern Oregon. The substance of the Tribes' complaint is that the Lost River and short nose suckers are in great peril and at extreme threat of extinction by diversion of water from Upper Klamath Lake to support farming. As part of this lawsuit, the Tribe is requesting the assigned Judge to order an injunction on lake elevation levels, above Biological Opinion thresholds which are currently being met while irrigation is occurring; which would completely shut down Klamath Project irrigation if ordered.

The Lost River sucker and shortnose sucker are listed as endangered species under the federal and California Endangered Species Act. They are also a fully protected species under California law, which means that their take is prohibited by law with narrow exceptions for scientific research, efforts to recover the species, and where conservation and management of the species is provided for in a natural community conservation plan, approved by the Department of Fish and Wildlife.

At the same time that the Tribe is seeking an injunction which would shut down farming and ranching in the Klamath Project to purportedly save fully protected suckers, AB 2640 is positioned to grant a legislative waiver of these protections, for a project that would permanently eliminate

reservoir habitat above the dams currently occupied by both sucker species, and would result in the extirpation of the species in that portion of their range. In light of the precarious status of the species and a dearth of information regarding its contemporary distribution and abundance, as well as the prominent role of the State of California as an advocate for dam removal, those concerned about the fate of the suckers should question if the State has a greater interest in dam removal than the survival of the endangered suckers; by attempting to side-step law rather than abiding by it, as every other entity, landowner, or project proponent is required to do.

Due to the issues outlined above, we urge you to reconsider AB 2640 by not allowing its passage, and rather require that State law is met and abided by. Please feel free to contact, Elizabeth Nielsen, Siskiyou County Project Coordinator, at any time at enielsen@co.siskiyou.ca.us or (530) 842-8012.

Sincerely,

Ray A. Haupt, Chair
Board of Supervisors

COUNTY OF SISKIYOU
Board of Supervisors

P.O. Box 750 ▫ 1312 Fairlane Rd
Yreka, California 96097
www.co.siskiyou.ca.us

(530) 842-8005
FAX (530) 842-8013

July 17, 2018

Ms. Michelle Siebel
State Water Resources Control Board
Division of Water Rights- Water Quality Certification Program
PO Box 2000
Sacramento, CA 95812-2000

Subject: Comments re Draft California State Water Resources Control Board Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project

Dear Ms. Siebel:

The Siskiyou County Board of Supervisors, through coordination with its consultant, SWCA Environmental Consultants, writes this letter to provide comments on the California State Water Resources Control Board's (California Water Board) *Draft California State Water Resources Control Board Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project.*

It is the County's understanding that the draft Water Quality Certification has been published for comments prior to the release of the draft Environmental Impact Report that the California Water Board is drafting related to the Klamath River Renewal Corporation's application to the Federal Energy Regulatory Commission to remove the four Lower Klamath River Dams. The County anticipates the release of the draft EIR later this year, which should include a much more robust and detailed analysis of all impacts as a result of potential dam removal, many of which will significantly impact Siskiyou County. This letter is not meant to serve as the County's final comments related to the Water Quality Certification, and additional comments will be provided when the California Water Board makes the draft EIR available for public comment.

Coordination with Oregon Department of Environmental Quality

U.S.C. §1341 (a)(2) stipulates that when a discharge may affect the quality of the water of a downstream state, the upstream state must notify the downstream state. As the Oregon Department of Environmental Quality has issued a draft Water Quality Certification in parallel with the California Water Board's draft certification, additional information must be provided in Section 1, Background, to provide the public with any coordination and notification processes that have transpired between the two agencies. The California Water Board must ensure that Oregon's draft Water Quality Certification meets all water quality standards and adopted criteria. There is nothing in the California Water Board's draft Water Quality Certification that describes that this cumulative

analysis has taken place; and as such Siskiyou County requests that they be provided with this information.

Condition 1. Water Quality Monitoring and Adaptive Management

Under the "Reporting and Adaptive Management" subsection on pages 17 and 18 of the draft California Water Quality Certification, the condition states that "Monitoring and monthly reporting shall continue until otherwise approved by the Deputy Director." This condition should include the parameter(s) by which the Deputy Director would conclude that monitoring and monthly reporting is no longer required; and again we request that this information be provided to Siskiyou County.

Condition 4. Anadromous Fish Presence

Under the Frequency and Duration subsection on page 24, the condition states that "Fish presence surveys shall be conducted for at least four consecutive years and until otherwise approved or modified by the Deputy Director." This condition should include the parameter(s) by which the Deputy Director would conclude that fish presence surveys are no longer required; and we request that this information be provided to Siskiyou County.

We look forward to the California Water Board's responses to our comments and inquiries; please feel free to contact Elizabeth Nielsen, Project Coordinator, at (530) 842-8012 or enielsen@co.siskiyou.ca.us. This letter was approved by the Siskiyou County Board of Supervisors on July 17, 2018, by the following vote:

AYES: Supervisors Haupt, Kobseff & Criss
NOES: None
ABSENT: Supervisors Nixon & Valenzuela
ABSTAIN: None

Sincerely,

Ray A. Haupt, Chair
Board of Supervisors

cc: ODEQ

COUNTY OF SISKIYOU
Board of Supervisors

P.O. Box 750 □ 1312 Fairlane Rd
Yreka, California 96097
www.co.siskiyou.ca.us

(530) 842-8005
FAX (530) 842-8013

July 17, 2018

Chris Stine, Hydroelectric Specialist
State of Oregon Department of Environmental Quality
165 E 7th Ave, Suite 100
Eugene, OR 97401

Subject: Comments re Draft Oregon Department of Environmental Quality Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project

Dear Mr. Stine:

The Siskiyou County Board of Supervisors, through coordination with its consultant, SWCA Environmental Consultants, writes this letter to provide comments on the Oregon Department of Environmental Quality's (ODEQ) draft *Water Quality Certification for Klamath River Renewal Corporation Lower Klamath Project (Water Quality Certification).*

Coordination with California State Water Resources Control Board

1. U.S.C. §1341 (a)(2) stipulates that when a discharge may affect the quality of the water of a downstream state, the upstream state must notify the downstream state. It is not apparent in reading the *Water Quality Certification*, that this procedure has taken place. Please provide some context for any coordination and notification that has occurred between Oregon and California with respect to the issuance of a Water Quality Certification that would affect California water quality.

Condition 2. Water Quality Management Plan

1. Under the list of parameters listed on page 2 of the *Water Quality Certification* - are total suspended sediments (TSS) and total dissolved solids (TDS) both included in suspended sediment concentration requirement? If not, then why aren't TSS and TDS part of the monitoring protocol?

2. Why is ODEQ not requiring monitoring of sediment contaminants such as DDT, DDD and DDE, TCDD along with semi-volatile organic compounds and dioxin-like compounds? These contaminants were shown in the December 2012 Water Quality Support Technical Information to exceed screening limits and ODEQ's Bioaccumulation screening level values (SLVs). This seems especially important since J.C. Boyle sediments have higher chemical concentrations and more chemicals of potential concerns (COPCs) than the other reservoirs. The lists of chemicals in sediment samples from J.C. Boyle that exceed one or more sediment screening levels (Table C-5) and those that

exceed one or more human health sediment screening levels (Table C-6) of the December 2012 Water Quality Support Technical Information are extensive and should not be ignored.

Condition 4. Miscellaneous Measures Protective of Beneficial Uses

1. Under the "Frequency and Duration" subsection on page 24, the condition states that "Fish presence surveys shall be conducted for at least four consecutive years and until otherwise approved or modified by the Deputy Director." This condition should include the parameter(s) by which the Deputy Director would conclude that fish presence surveys are no longer required.

2. J.C. Boyle was originally constructed at the site which was historically known as "Moonshine Falls". This potential natural fish passage barrier should be included in the list on page 4 under 4(a)(iii).

Condition 5. Reservoir Drawdown and Diversion Plan

1. On page 5 under 5(c)(iii), Cultural Resource Discovery should include a site security and protection plan for each discovered site.

2. On page 5 under 6(a), the licensee should be required to develop and implement an Aquatic Invasive Species (AIS) Monitoring and Protection Plan to prevent introduction of any AIS by heavy equipment involved in the removal process both on land and in water.

Condition 6. Reservoir Area Management Plan

1. On page 6 under 6(b)(iii), the Licensee should be required to inspect and remedy physical barriers to fish passage more frequently than once per year since the migratory fish species have different upstream passage windows. At the very least there should be a spring and fall inspection period that occurs well in advance of the known upstream passage windows so that remedies can be implemented prior to the onset of fish migration.

Condition 8. Site Restoration, Erosion and Sediment Control

1. Page 8 under 8(d)(i), it is assumed that there has been some coordination between the Licensee and the U.S. Bureau of Land Management (BLM) regarding the Topsy Campground removal since that facility is owned by the BLM. Please provide some context for coordination between ODEQ and BLM.

2. Page 8 under 8(e), much of the terrain on the downslope side of the J.C. Boyle canal is very steep. It seems negligent to side-cast canal earthen material since much of it will eventually end up in the river reach causing turbidity.

Condition 10. Spill Response

1. Page 10 under 10(a)(vi), equipment operated in state waters should have a manifest showing previous work locations and also be fully inspected for AIS presence prior to use on this project to prevent contamination in the Klamath River.

We look forward to the ODEQ's responses to our comments and inquiries; please feel free to contact Elizabeth Nielsen, Project Coordinator, at (530) 842-8012 or enielsen@co.siskiyou.ca.us. This letter was approved by the Siskiyou County Board of Supervisors on July 17, 2018, by the following vote:

AYES: Supervisors Haupt, Kobseff & Criss
NOES: None
ABSENT: Supervisors Nixon & Valenzuela
ABSTAIN: None

Sincerely,

Ray A. Haupt, Chair
Board of Supervisors

cc: California Water Resources Control Board

APPENDIX D: DRAFT RECREATION PLAN FOR THE LOWER KLAMATH PROJECT

1. BACKGROUND

The Final Klamath Facilities Removal EIS/EIR (DOI 2012) evaluated the potential impacts of the removal of the four PacifiCorp damns on the Klamath River in Oregon and California. Socioeconomic and recreation impacts were among the resources analyzed and disclosed, though not all potential impacts would affect economics and/or recreation in Siskiyou County, California (see discussion below). The applicable potential impacts from the Proposed Action analyzed in the Klamath Facilities Removal EIS/EIR are discussed in this section.

1.1 Overview of Dam Removal Effect Determinations on Reservoirs

The removal of the Iron Gate, Copco 1, and Copco 2 dams would result in a change in recreational opportunities for Siskiyou County residents and visitors. The removal of dam facilities and drawdown of the Iron Gate and Copco 1 reservoirs would effectively change the recreational opportunities of these areas from flat water, reservoir-based (power boating, water skiing, flat-water boating, camping) to river-based. Both recreation sites at Copco Reservoir (Mallard Cove and Copco Cove) and seven of ten recreation sites at Iron Gate Reservoir (Wanaka Springs, Camp Creek, Juniper Point, Mirror Cove, Overlook Point, Long Gulch, and Dutch Creek) would be completely removed and restored, resulting in a reduction of eight day use/picnic areas, four campgrounds, one primitive campground, five boat launches, and one boat dock within Siskiyou County. Two reservoir shoreline dispersed recreation sites at Copco and four at Iron Gate would also be lost with reservoir drawdown (Detailed Plan). Across Klamath and Siskiyou Counties, there would be an anticipated reduction of 40,901 annual visitors to the reservoirs (including J.C. Boyle), resulting in a net decrease in expenditures of $627,838; four jobs would be lost, resulting in a net decrease of $130,000 in labor income and total loss of $310,000 economic output (DOI 2012).

River elevation in the hydroelectric reach (from J.C. Boyle to Iron Gate Dam) of the Klamath River is primarily controlled by large boulders and bedrock. During reservoir drawdown, river sections currently contained in the reservoirs are anticipated to return to pre-dam elevations, reverting to and maintaining a pool-riffle morphology. Channels will likely vary from narrow to wide and sinuous with complex features (such as meander cut offs and vegetated islands) (DOI 2012). Morphological or elevational changes to the reaches between the reservoirs are not anticipated to occur as result of facility removal. Downstream of Iron Gate Dam, bed elevation is anticipated to increase 1.5 feet from Bogus to Willow Creek and less than one foot downstream from there over the next 50 years, as a result of sediment flushing during reservoir drawdown and the return of natural hydrologic conditions (DOI 2012).

1.2 Overview of Dam Removal Effect Determinations on In-River Sport Fishing

With the removal of the dams, in-river sport fishing opportunities are anticipated to increase with the resulting improvement in water quality and habitat connectivity. The increased range, population, and abundance of these species would likely reduce the number of entire fishing closures (commercial and sport), increasing overall recreational fishing opportunities. However, acceptable fishing flows would shift from the current July/August time period to March through May, as flows would no longer be regulated by reservoir releases. The increase in in-river sport fishing opportunities would result in additional expenditures of $127,000 in Klamath, Siskiyou, Humboldt, and Del Norte Counties; 2.6 jobs would be added, resulting in a net increase in $70,000 labor income and $150,000 in economic output.

1.3 Overview of Dam Removal Effect Determinations on Whitewater Boating

The removal of dams would also have an effect on acceptable flow for whitewater boating, with beneficial or adverse impacts, depending on location. There would be negligible changes to acceptable flows downstream from the Iron Gate Dam; therefore, there would be no effect to whitewater boating opportunities on the Lower Klamath River and adverse economic impacts are not anticipated (DOI 2012). Dam removal would significantly increase acceptable flows in the Copco 2 bypass reach between July and September, as well as create opportunities for a more continuous boating trip (approximately 50 more river miles would be continuously navigable compared to current conditions, depending on acceptable flows, below the Keno Dam).

Significant adverse impacts are likely for whitewater boating opportunities in the Hell's Corner Reach, located downstream of the J.C. Boyle Dam to the Copco Reservoir, which includes a Class IV rapid (Hell's Corner) in Oregon. Flow levels are dependent on hydroelectric peaking flows of the J.C. Boyle Powerhouse, and the removal of the dam would significantly reduce acceptable flow days during high demand periods (DOI 2012).

1.4 SWCA Findings on Effects to Recreation in Siskiyou County[1]

The reservoir drawdown of Copco and Iron Gate Reservoirs, removal of two day-use facilities at Copco Reservoir, and the removal of five campground/day use sites and three day use sites at Iron Gate Reservoir would significantly reduce flat-water recreational opportunities in Siskiyou County. The EIS/EIR analyzed flat-water opportunities within the Klamath Basin and determined that there are a sufficient number of reservoirs within the analysis area (largely located in Oregon) that the effects of the loss of these opportunities would be less than significant; however, as there are only a limited number of reservoirs within Siskiyou County that would provide a similar flat-water recreational setting, the local adverse effects would be most significant in Siskiyou County. Visitors would need to travel to Lake Shastina, approximately 30 miles south of the reservoirs, or Medicine Lake, approximately 43 miles southeast, to remain within Siskiyou County and find comparable reservoir-based recreational opportunities. Reservoirs in Oregon are a shorter distance away and provide a greater variety of amenities than those in Siskiyou County, and it is likely that recreationists would shift use to those rather than stay within the County. The enhanced and new facilities proposed by KRRC (see Table 1 below) do not provide an appropriate level of in-kind mitigation for the loss of flat-water recreation opportunities within Siskiyou County.

It is anticipated that establishment of a steelhead fishery above the Iron Gate Dam and a potential significant increase in redband trout population numbers below the Keno Dam would contribute to enhanced fishing opportunity and use in Siskiyou County, as these species would be available for fishing in areas of the County they are currently not present and/or abundant. With the improvement in redband trout and steelhead fisheries and increase in in-river sport fishing opportunities within the hydroelectric reach and downstream of the Iron Gate dam, recreational use and associated expenditures are anticipated to moderately increase in Siskiyou County. Proposed new river access points for in-river sport fishing (see Table 1 below) would provide opportunities for this type of recreation.

As users of the Hell's Corner Reach of the Klamath River have limited opportunity to contribute to the Siskiyou County economy (users enter downstream of the J.C. Boyle Dam in Oregon and exit at either an established takeout at the Oregon/California state line or at the Copco Reservoir) and most outfitters offering commercial trips on this reach are located in Oregon, the adverse effect of dam removal on whitewater boating would have limited effect in Siskiyou County. Proposed new river access points in

[1] SWCA can expand further on this discussion if requested

Siskiyou County (see Table 1 below) and the longer stretches of navigable water provided by facility removal would provide additional opportunities for whitewater boating within the County.

2. KRRC REPLACEMENT RECREATIONAL FACILITIES

The KRRC has proposed several new and enhanced facilities as part of the proposed project. Table 1 describes these proposed facilities:

Table 1. Recreational facilities proposed by KRRC in Siskiyou County

Feature	Proposed Recreation Development	Current Owner/Operator[2]	Origin
Fall Creek Day Use Area	Upgrade facilities and reconstruct trail leading to Fall Creek waterfall	PacifiCorp	Detailed Plan
Jenny Creek Campground	Expand campground and upgrade facilities to provide Jenny Creek and Klamath River recreation	PacifiCorp	Detailed Plan
Iron Gate Hatchery Day Use Area	Reconstruct day use site to provide additional facilities and a boat ramp	PacifiCorp/CDFW	Detailed Plan
New Campgrounds	Two small to medium campgrounds in a to be determined location	N/A	Detailed Plan
PacifiCorp Fishing Access Sites 1 through 6	Maintain or enhance fishing access sites on Parcel A land between Copco Reservoir and state line. Sites include signage, porta-johns and trash receptacles	PacifiCorp	N/A
New Routes/Roads	Provide routes on each site of the river that could be retained permanently to provide public recreation access to the river at defined locations.	N/A	Detailed Plan
Non-motorized Trail	Construct trail to provide fishermen, biking, and hiking access from J.C. Boyle dam site to Iron Gate fish hatchery	PacifiCorp, BLM, private, and USFS	Detailed Plan
New River Access Locations	Develop river boating access with amenities (restrooms, road access,	N/A	American Whitewater

[2] The document submitted by KRRC did not identify which entity would assume responsibility for maintenance and operation of these proposed facilities. KRRC would need to ensure adequate funding would be provided to maintain and operate any new and/or improved sites.

	parking) in areas where the difficulties of river navigation changes, including: upstream and downstream of Ward's Canyon and at Iron Gate Dam		
Copco 2 Bypass Reach	Remove riverine vegetation to provide safe boating thoroughfare in the Copco bypass reach	N/A	American Whitewater
Stateline boater take out	Retain/enhance existing boater takeout on the river at Stateline	PacifiCorp/BLM	N/A

3. RECOMMENDATIONS

The analysis approach outlined in the EIS/EIR and U.S. Bureau of Reclamation technical reports are standard analyses utilized in other federal projects of similar scale. Due to the lack of data available for analysis, it is SWCA's opinion that these represent the best information and tools available. A Siskiyou County-specific recreational and economic analysis could provide additional insight to the scale of the potential local impacts related to dam facility removal disclosed in the analyses. Plans for new roads and recreation sites along the restored Klamath River would provide continued and improved access for recreation after implementation. Existing recreation sites planned for retention are proposed in areas that would not be affected by the change in water level during reservoir drawdown, as they are already located in river areas and significant changes in river elevation in areas other than those currently impounded by reservoirs are not anticipated.

In addition to the new and enhanced facilities proposed by KRRC, SWCA has considered other potential mitigation projects that would replace existing recreational facilities within Siskiyou County[3]:

- Development of one ADA-accessible developed camping and river-side fishing site to replace the Camp Creek site that will be removed with reservoir restoration activities in the hydroelectric reach of the Klamath River. This will maintain a similar number of ADA-accessible opportunities as available under current conditions.

- Enhancements to the Siskiyou County-owned day use site at Shastina Lake to provide developed camping, day use, and boat launch opportunities within the County in a similar flatwater setting as currently provided by the Copco and Iron Gate Reservoirs. Enhancements to the existing site or development of a second site at Medicine Lake is also recommended to provide additional flatwater-based fishing and camping opportunities in a wooded mountain lake setting.

- Development of an interpretive day use site along the hydroelectric reach within Siskiyou County. The site could provide educational natural resource information and use history for the Klamath River, and utilize decommissioned pumphouse infrastructure and fish ladders as interpretive exhibits.

- Funding for a regional marketing campaign to increase public awareness of camping, fishing, and whitewater boating opportunities within the County, particularly along the hydroelectric reach and the lower Klamath River. With a projected increase in fishing opportunities related to dam removal-related improvements in Klamath River fisheries, downstream communities could draw

[3] KRRC would need to ensure adequate funding would be provided to maintain and operate any new and/or improved sites.

additional recreational visitors for this purpose. Informational signage could also redirect existing recreationists to services available in adjacent communities, such as Weed and Happy Camp.

- Development of a whitewater park along a portion of the hydroelectric reach of the Klamath River in Siskiyou County. Whitewater parks provide a controlled environment for river-based recreationists to practice skills (such as kayaking, rafting, tubing, paddle boarding, and surfing), as well as day-use activities (such as picnicking). Similar facilities have been constructed in areas such as Bend, OR, Boise, ID, and Charles City, IA.

- Development of a County-run park providing an established placer claim for recreational gold mining and associated facilities for public use in Siskiyou County. Panning and other non-motorized recreational gold mining activities are allowed on areas with valid claims. Suction dredging is currently prohibited in the state of California; however, Section 13172.5 of the California Water Code has established framework to lift the prohibition and develop a permitting process for the activity. Multiple recreational gold mining attractions are currently operating in the state of California, some of which have historically provided suction dredging equipment for rent.

APPENDIX E: FERC SUPPLEMENTAL SURRENDER APPLICATION FOR THE LOWER KLAMATH PROJECT

NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

Paul S. Weiland
D 949.477.7644
pweiland@nossaman.com

Refer To File # 290380-0004

VIA FERC ONLINE

June 3, 2021

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Comment on Final Design and Management Plans, Lower Klamath Project, FERC Nos. 14803-001 and 2082-063

Dear Secretary Bose:

We are writing on behalf of Siskiyou County ("County") to express our significant concerns regarding the Supplemental Amended License Surrender Application Submittal ("Submittal") for the Lower Klamath Project ("Project"), which the Klamath River Renewable Corporation ("KRRC") submitted to the Federal Energy Regulatory Commission ("FERC") on February 26, 2021. The Submittal includes 16 new management plans as part of the Project's Definite Plan outlining the Project's design specifications. Critically, a number of these plans are incomplete or, in some cases, simply non-existent at this time. Examples include the Erosion and Sediment Control Plan and Bald and Golden Eagle Management Plan. The Project will doubtless have major impacts in these and other areas in light of the amount of contaminant-laden sediment built up behind the dams that will be released downstream or disposed of at sites within the County and the local eagle populations that use the reservoirs and will be harmed by dam removal activities. Detailed concerns regarding a number of the plans are included in SWCA's "Review of and Comment on the Supplemental Surrender Application for the Lower Klamath Project," attached hereto as Attachment I.

As FERC is aware, KRRC and PacifiCorp have submitted applications to FERC for hydropower license transfer and surrender to decommission and remove four lower Klamath River dams—three of which are located within Siskiyou County. On multiple occasions, the County has expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as other environmental and societal impacts, including air quality, climate change, cultural resources, hazardous materials, and traffic impacts, in addition to socioeconomic impacts on the local community. *See, e.g.*, *PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 28 (Mar. 15, 2018). The County has a strong vested interest in ensuring that the Definite Plan considers the Project's entire range of consequences on the County and its residents. Unfortunately, the Submittal fails to adequately address the County's concerns.

While the County acknowledges KRRC's efforts to address the Project's environmental and socioeconomic impacts, the management plans included in the Submittal remain inadequate. As set forth in SWCA's technical comments (Attachment I), the Project's Definite Plan, including the management plans in the Submittal, warrant additional revisions in order to sufficiently address the full range of impacts. Below is a brief summary of the many respects in which the Submittal is deficient:

- **Exhibit A: Aquatic Resources Management Plan**
  - The plan substantially overestimates the ability of salmon to recolonize spawning habitat in the Klamath River.
  - The plan includes a vague definition of "the presence of anadromous fish" that will greatly impact the duration of monitoring.
- **Exhibit B: Erosion and Sediment Control Plan**
  - The plan does not contain sufficient detail regarding best management practices.
- **Exhibit D: Hatcheries Management and Operations**
  - The plan to discontinue the Fall Creek Hatchery after eight years assumes recolonization of sites above the removed dams will have been completed and will replace or exceed the number of fish supplied by the Hatchery.
- **Exhibit F: Historic Properties Management Plan**
  - The plan fails to explain when license transfer would occur or how resources would be managed post-transfer.
  - The scope of the National Register of Historical Places evaluation, and the level of detail provided in the plan, is inadequate.
  - The plan lacks appropriate alternative mitigation options that do not conflict with current guidance and regulations.
  - The reporting techniques and standards should be outlined more specifically and consistently throughout the plan.
  - The plan's reporting timelines are unrealistic and place an unreasonable amount of authority with KRRC.
  - The details regarding an endowment to protect and enhance tribal cultural resources are insufficient.
  - The plan provides a loophole allowing planned future actions to evade archaeological resources review.
  - Clarification is needed regarding how impacts to the built environment will be mitigated.
  - The plan includes inconsistencies regarding which activities are exempt from cultural resources review.
- **Exhibit H: Recreation Facilities Plan**
  - The plan fails to justify the planned removal of two additional recreation areas.
- **Exhibit J: Reservoir Area Management Plan**
  - It is unclear what potential techniques could be used to remove sediment post-drawdown.
  - The plan does not take into account the anticipated additional sediment from fluvial bank erosion, bank failure, or erosion from tributaries, springs, or concentrated surface runoff from hillslopes.
  - The plan does not include mitigation strategies for the irrigation and weather constraints caused by sediment deposits.

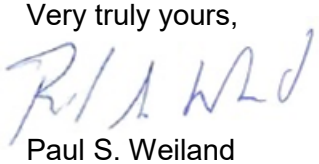
  - KRRC did not coordinate with the County's Agricultural Department regarding re-vegetation concerns with respect to the spread of noxious weeds as a result of dam removal.
  - The monitoring plans for sediment stabilization/evolution and volitional fish passage lack performance criteria to measure success or failure.
- **Exhibit K: Reservoir Drawdown and Diversion Plan**
  - The plan is based on unrealistic, false assumptions regarding suspended sediment concentrations. The actual amounts of suspended sediment concentrations have significant environmental implications that KRRC is unlikely to analyze under the false assumptions.
  - The plan does not identify the level of risk to residential properties with respect to terrain stability, and also does not identify proposed mitigation measures.
  - The drawdown rate should be lowered to mitigate impacts.
  - The graphs illustrating water surface levels are unclear.
- **Exhibit L: Sediment Deposit Remediation Plan**
  - The plan contains language that drastically limits the scope of the remediation plan such that it is inadequate to properly address arsenic-contaminated sediment remediation in comparison with federal and state standards.
  - The plan does not address the deposition of reservoir sediments that have the potential to negatively impact the aquatic habitat of the river below the Iron Gate Dam.
- **Exhibit M: Terrestrial and Wildlife Management Plan**
  - The plan lacks the detail and specific protocol or guidance necessary to protect known or suspected special-status species present (state or federally protected).
  - The survey area must be expanded in order to adequately evaluate impacts of the Project.
  - The plan ignores certain state-protected species listed as potentially occurring or known to occur within the survey area or in downstream areas of the Klamath River. KRRC, claiming preemption of California and Oregon law, intends to harm these species without undertaking a jeopardy determination and fully mitigating the harm or violation of survival guidelines, in violation of state law.
  - Given that VES surveys cannot easily detect Western Pond Turtles within the project area during the winter, the plan should consider how construction work taking place during the winter might affect Western Pond Turtles that may be present but were not observed during the winter surveys.
  - The plan lacks a discussion of the federal and state regulatory requirements for nesting migratory birds, as well as specific protocol procedures regarding survey methodology, discovery, notification, spatial buffers, removal, and monitoring of active nests.
  - The plan includes insufficient detail with respect to the Project's impacts on species such as the Great Blue Heron and cliff swallows.
  - The plan lacks specific protocol procedures related to survey methodology, exclusion strategy, and monitoring of bats.
  - The plan does not include considerations for special-status species or special-status plant species.
- **Exhibit N: Waste Disposal and Hazardous Materials Management Plan**
  - The plan does not address whether much-needed asbestos sampling and analysis of the concrete dams at the Copco No. 1, Copco No. 2, and J. C. Boyle Developments was conducted.

- **Exhibit O: Water Quality Monitoring and Management Plan**
  - The Klamath River Total Maximum Daily Load ("TMDL") Model includes the false assumption that all waters that enter the state of California are fully compliant with applicable TMDLs.

In addition to the comments presented by SWCA regarding the management plans included in the Submittal, the County adds that its ongoing concern regarding the issue of the Project's compliance with local requirements remains unaddressed. The County is concerned by KRRC's failure to coordinate with the County regarding what additional local requirements may apply to the Project. Project proponents are obliged to determine the County authorizations that are required for their activities and apply for such authorizations. Where they are unsure, Project proponents may seek technical assistance from the County. We are aware that components of the proposed action, such as creation of waste disposal sites and construction of structures on sites, are subject to regulation by the County. We are also aware that KRRC has not shared the details of its plans with respect to such components or initiated efforts to secure County authorization of such components. The County plans to formally address its concerns regarding the County authorizations for the proposed action in a subsequent comment letter. In the meantime, we request that FERC instruct KRRC that it must comply with all local requirements, unless it can make a showing that it is impossible to do so.

For the foregoing reasons, and as further discussed in detail in Attachment I, the County requests that FERC instruct KRRC to file comprehensive management plans to inform its own assessment of the extent to which the Project meets legal requirements and to address the County's unresolved concerns. Please do not hesitate to contact us with questions.

Very truly yours,



Paul S. Weiland
Nossaman LLP

Attachment

ATTACHMENT I

Document Accession #: 20210603-5104 Filed Date: 06/03/2021

SWCA ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

51 West Dayton Street
Pasadena, California 91105
Tel 626.240.0587 Fax 626.240.0607
www.swca.com

TECHNICAL MEMORANDUM

June 3, 2021

Natalie Reed
County of Siskiyou
P.O. Box 659
Yreka, California 96097

Re: Review of and Comment on the Supplemental Surrender Application for the Lower Klamath Project

---

The following comments are related to the exhibits that are included as part of the Klamath River Renewal Corporation's (KRRC) Supplemental Amended License Surrender Application Submittal dated February 26, 2021.

EXHIBIT A: AQUATIC RESOURCES MANAGEMENT PLAN

APPENDIX A. SPAWNING HABITAT AVAILABILITY REPORT

Sediment deposited downstream as a consequence of the proposed action will have multiple harmful effects on fish and other aquatic species. Sediment will cover areas where fish feed, hide from predators, and lay eggs. It will also smother and kill fish eggs if they are present. Sediment suspended in the water will clog fish gills and also obscure vision, making it difficult for fish to find food and see predators. Sediment will also change the geomorphology of the channel, reducing or eliminating scour holes and blocking tributary inlets. Fish adaptively avoid areas impacted by sediment deposits. Evidence from the Elwha River dam removal indicates that after dam removal, few fish will move above the impacted areas for spawning and recolonization. Spawner survey data for the Elwha River in Washington indicate fish moved above the dam immediately after dam removal for spawning in large numbers in the middle section of the river (above the first dam). However, seven years after the upper dam was removed, spawning is still very limited in the upper section (above the second dam) and almost non-existent in tributaries (according to Lower Elwha Klallam tribal spawner survey data). Also of note, the Elwha River system has significantly better water quality than the Upper Klamath (due to extensive agricultural impacts in the Klamath Lake) and likely significantly less degraded habitat, adding more doubt regarding the amount and extent of recolonization in the Upper Klamath. Therefore, the assertion that access to 44,100 square yards of habitat would offset the loss of 2,100 redds is unsupported by available data. The actual amount of time required to recolonize the entire 44,100 square yards of mainstem habitat (as well as suitable tributary reaches) is unknown.

The assumption of the report is that all measured spawning habitat will be quickly colonized. However, full colonization of tributary spawning reaches is very unlikely outside of hatchery reintroduction or without large unknown time scales. The discontinuation of the Fall Creek Hatchery after eight years is also of concern, as it assumes recolonization of sites above the removed dams will be complete and will replace or exceed the number of fish supplied by the Hatchery. Siskiyou County and the Siskiyou County Water Users Association

have both commented that, because there is already a trap and haul infrastructure at Iron Gate Dam, it would make most sense to test the model and "scientific analysis" regarding the ability of salmon to survive the conditions in the Klamath River and to find and succeed in spawning.

APPENDIX C. ANADROMOUS FISH PRESENCE MONITORING

Clarification is needed regarding the definition of "the presence of anadromous fish." The current wording is vague and can be interpreted in many ways (i.e., two fish, a single reproducing pair, etc.) and will greatly impact the duration of monitoring. Given the survival rate of eggs to fry and fry to smolt, a single sighting of an anadromous fish or spawning pair cannot constitute recolonization. A larger cutoff is recommended, scaled to tributary size (e.g., five redds for a smaller tributary, etc.). This would be a more realistic documentation of recolonization. A common protocol is to continue upstream 1 to 2 km after the last redd sighting until no new redds are observed.

The number of smolts using tributaries as thermal refugia on the Klamath River is extremely high due to high mainstream temperatures in the Klamath; at least 100,000 fish congregate at some of the major tributaries. It is unlikely that electroshocking and returning these fish upstream would result in a decrease in mortality. The combination of electroshocking, packing, and moving the fish will produce significant mortality. It seems more logical and effective to remove sediment manually from the drawdown sites (as per the Elwha River dam removal) to reduce instream sediment inputs to safe levels for juvenile fish.

EXHIBIT B: EROSION AND SEDIMENT CONTROL

The Erosion and Sediment Control Plan does not contain sufficient detail regarding best management practices (BMPs) to make a determination of adequacy. The plan does not identify areas of anticipated erosion or sediment deposition or specify plans for addressing such concerns. Instead, the plan describes erosion and sediment control measures in general terms that could apply to a variety of land-disturbing activities.

EXHIBIT D: HATCHERIES MANAGEMENT AND OPERATIONS PLAN

APPENDIX D. PRELIMINARY BIOLOGICAL PROGRAM – FALL CREEK

The primary concern regarding the Hatchery Plan is the discontinuation of the Fall Creek Hatchery after eight years, as it assumes recolonization of sites above the removed dams will have been completed and will replace or exceed the number of fish supplied by the Hatchery. Without intentional stocking in specific tributaries, it is unlikely these sites will be recolonized outside of the normal stray rate of each species. The exception would be in cases of extreme spawning densities (i.e., redd site competition) as seen in high fish density areas (such as rivers in Alaska) where fish risk redd superimposition or must move upstream to find open spawning areas. This occurs to some extent below Iron Gate Dam and any other natural or unnatural fish migration barrier. Some immediate upstream fish movement is to be expected, but the extent will be unknown unless modelling has been done to evaluate the amount of redd superimposition below Iron Gate Dam and the number of adults needing to move upstream to find open spawning areas. Although the velocities of average species-specific spawning habitat can be estimated, the amount of suitable spawning substrates will be unknown until actual dam removal occurs.

Although considered controversial, the ability for introduced or re-introduced salmon stocks to populate or repopulate stream systems has been demonstrated in many Great Lakes tributaries, New Zealand, Chile, and even in severely compromised habitat such as Panther Creek (and upper Columbia/Snake River Tributaries that lost all stocks due to mining operations). The Hatchery program should consider aggressively seeding tributaries and upper reaches with as close to genetically indigenous stocks as possible or continuing the Hatchery beyond eight years, at least until fish production is replicated naturally, or both. The continuation of hatchery stocks as needed will mitigate for losses to local communities in terms of tourism and sportfishing incomes as well as re-seeding the Upper Klamath and its tributaries to their current carrying capacities (which is likely to be well below historical numbers in habitat compromised reaches). Because of habitat degradation in the Upper Klamath due to water quality and disease issues, it is conceivable that the Hatchery should be maintained in order to achieve current fish levels.

EXHIBIT F: HISTORIC PROPERTIES MANAGEMENT PLAN

Exhibit F: Historic Properties Management Plan (HPMP), dated February 2021, replaces the previous Appendix L: Cultural Resources Plan prepared in June 2018. The 2018 plan lacked sufficient detail and analysis of the area of potential effects (APE); methods for resource inventory, recording, and evaluation; and future management and agreement documents, among other deficiencies. The 2021 HPMP remedies most of those deficiencies and includes updated goals and objectives, findings from additional cultural resources studies, and project-related details and information not available in 2018.

Concerns regarding the HPMP include the following:

CHAPTER 2. BACKGROUND INFORMATION

The HPMP fails to explain when license transfer would occur or how resources would be managed post-transfer. The HPMP states that “project lands subject to transfer by the Renewal Corporation to the States or to a designated third-party designee once the Renewal Corporation has met all license surrender conditions are referred to as ‘Parcel B lands’” and that “once the Renewal Corporation has completed facilities removal and all surrender conditions have been satisfied, the Renewal Corporation will transfer ownership of these lands to the respective States or to a designated third-party transferee.” The HPMP should include information regarding the management of resources after the transfer and provide a timeline for when the transfer would occur.

CHAPTER 3. IDENTIFICATION OF HISTORIC PROPERTIES

Section 3.1 Area of Potential Effects and Area of Direct Impacts

The HPMP does not provide any justification as to why only a portion of the APE was studied to identify and assess direct impacts on historical properties. The HPMP defines an APE and an area of direct impacts (ADI). The APE is drawn broadly to include a 0.5-mile-wide area on each side of the Klamath River from the upper reach of the J.C. Boyle Reservoir to the river mouth at the Pacific Ocean, and a 1-mile-wide area on each side of the reservoirs to address the potential for visual effects related to viewshed alterations. The ADI is a smaller area within the APE that delineates the locations of anticipated direct physical impacts and that generally corresponds with the limits of work (LOW) (Sections 3.1.1 and 3.1.2). The content of the HPMP focuses identification and evaluation efforts solely on resources within the ADI. Further, the HPMP presents no evidence that consulting parties approved of this approach. The HPMP should clearly state why the entire APE was not inventoried and demonstrate agreement for that approach among the consulting parties.

Section 3.2.1 Archaeology, Ethnography, Traditional Cultural Properties, and Klamath Cultural Landscape

This section references Appendix L of the Project Definite Plan (2018) for detailed records search information. Because the 2018 Definite Plan is being replaced by the current plan, this does not appear to be a valid reference. The records search information should be described in this HPMP.

The scope of the National Register of Historical Places (NRHP) evaluation is inadequate. The HPMP states that the "cultural resources inventory of the Project ADI is complete." Additionally, the HPMP states that "[t]o date, none of the 92 archaeological sites has been formally evaluated for NRHP eligibility" and that "execution of the Phase II study is pending." However, the HPMP also states that "[p]reviously recorded archaeological sites located in the ADI, but not PacifiCorp Parcel B land (e.g., Iron Gate Dam to Humbug Creek and other select areas), have not been monitored or updated. Additional survey areas located outside the LOW were identified for pedestrian survey as part of [the] definition of the Project APE, as well as based on recommendations derived during informal consultation with tribes and consulting parties." The HPMP also proposes NRHP evaluation (Phase II testing) of sites on Parcel B lands within the ADI. It therefore appears that only resources on Parcel B lands within the ADI will be evaluated for the NRHP. In addition, the HPMP does not provide a description of resource inventory methods for archaeological properties and does not address comments made on the previous plan that suggested a subsurface testing program in select areas.

The HPMP should detail inventory methods, state the reasoning for limiting evaluations to the properties on Parcel B lands, and provide a plan for completing updates and inventories for the areas not covered by the inventory effort. All studies should be completed and integrated into the HPMP prior to executing the HPMP and commencement of project activities unless allowed under other provisions of the HPMP (e.g., post-reservoir drawdown survey of currently inundated areas).

Table 3-4 Recorded Archaeological Sites in the ADI. The data in this table can be easily misinterpreted and lacks necessary detail. The HPMP defines the ADI as the same as the LOW; however, multiple cells within the "In LOW" column are marked "No," which suggests the resources are not within the ADI. The landowner status is also "No" in multiple cases, which is not descriptive. The table should be revised to represent the actual resources and associated details of resources in the ADI. Explanation should also be provided for why resources within the broader APE are not included, and/or a table outlining all of the resources in the APE should be provided.

Section 3.2.2 Built Environment Resources

This section mischaracterizes private lands as potentially ineligible for NRHP evaluation. The HPMP states that KRRC conducted architectural inventories in the project ADI using a combination of pedestrian and windshield surveys. The pedestrian surveys were conducted for Parcel B lands, and the windshield surveys were conducted for private lands. KRRC completed three Historic Resources Studies that included NRHP evaluations for three categories of built environment properties within the ADI: hydroelectric, transportation, and private property. Five NRHP-eligible historic hydroelectric districts, four individually eligible resources, and one NRHP-eligible bridge that may be subject to project effects were identified.

The HPMP proposes additional field surveys and research to fully evaluate NRHP eligibility for resources found on private property within the ADI along the Klamath River near Hornbrook, California (four properties), the Klamath River Community (24 properties), and along the shore of Copco Lake (~50 properties). These commercial, residential, and recreational properties may have local significance under NRHP Criterion A in the areas of Entertainment/Recreation and Community Development and Planning, as well as local significance under NRHP Criterion C in the area of Architecture (83, 86). The HPMP states, "however, as these investigations would need to occur on private property, the information may not be able to be collected."

Location on private property does not preclude NRHP evaluation. KRRC should provide a plan for complete inventory and evaluation of properties outside Parcel B lands within the ADI prior to implementation of the HPMP and commencement of project activities.

CHAPTER 7. MITIGATION AND MANAGEMENT DECISIONS

The HPMP states that KRRC will consider additional options in lieu of emergency data recovery, such as an archaeological "data banking" program. In 2020, the Secretary of the Interior issued Order No. 3389 that "disfavors" off-site compensatory mitigation (Section 3(b)). KRRC and consulting parties should consider this order and agree to appropriate alternative mitigation options that do not conflict with current guidance and regulations.

CHAPTER 8. PROVISIONS FOR ADDITIONAL SURVEY, ARCHAEOLOGICAL MONITORING, INADVERTENT DISCOVERIES, TREATMENT OF HUMAN REMAINS

Section 8.1 Additional Survey – Post-Drawdown

The HPMP states that KRRC will complete archaeological field surveys of previously inundated areas post-drawdown and that the studies will be carried out using "standard field survey techniques" and "accepted professional standards for documentation and reporting." The techniques and reporting standards should be outlined more specifically and/or explicitly reflect and be consistent with other parts of the document that describe these standards.

Section 8.6.1 Research Design

The HPMP states that the Research Design and Testing Plan prepared for the pre-decommissioning Phase II NRHP evaluation of known project sites serves as the framework for development of a research program for resources identified during or after decommissioning (140). This Research Design and Testing Plan should be included as an appendix to the HPMP or otherwise be readily available for reference during implementation.

Section 8.6.2 Subsurface Excavations

This section provides adequately detailed descriptions of methods for subsurface investigation; however, it appears to apply only to post-review archaeological discoveries. These methods should apply to all inventory and evaluation efforts (including pre-activity surveys and evaluations). See previous comments regarding methods.

Section 8.7.2 Schedule and Reporting and 8.8 Response to Looting and Vandalism

The HPMP states that consulting parties will have up to two working days upon receipt to review and provide comments and/or objections to FERC regarding a treatment plan and that State Historic Preservation Officers have two working days to review any revisions. These timelines are unrealistic and place an unreasonable amount of authority with KRRC. The authors should justify these timelines and explain how they will be meaningfully met.

CHAPTER 9. OTHER PROGRAMS

The HPMP states that KRRC will provide funding for an endowment for an appropriate organization (e.g., a non-profit mutual benefit organization) to protect and enhance tribal cultural resources that are exposed due to the project implementation on state and private lands in California, on a long-term basis following license surrender. There is a significant lack of detail regarding this activity. The HPMP should outline how much the endowment will be, how long it will last, provisions for replenishing the endowment (if any), and other processes and procedures for managing the endowment.

CHAPTER 10. IMPLEMENTATION PROCEDURES.

Section 10.3.1 Archaeological Resources

The HPMP provides a loophole allowing planned future actions to evade archaeological resources review. This section states that KRRC will conduct a thorough review of all new actions responsive to unforeseen circumstances to ensure that unanticipated future actions do not harm historic properties. This implies that reviews will only occur for unanticipated future actions; however, to protect historic properties, the Cultural Resource Specialist should review all planned and unanticipated project-related ground disturbing activities (with the exception of any exemptions identified in the HPMP) to ensure no impacts will occur. Review procedures should be clarified to address both planned and unanticipated project activities.

Section 10.3.2 Built Environment

This section states that impacts to the built environment (buildings and structures) will be mitigated under the memorandum of agreement (MOA) and that review procedures are not anticipated or applicable to this HPMP. It is unlikely the MOA provides a sufficient level of detail regarding the mitigation of historic built environment properties; in general, MOAs defer to an HPMP to describe these processes. This needs to be clarified. As written it also appears to apply to all built environment properties, regardless of NRHP eligibility. This should also be clarified.

Section 10.3.3 Exempt from Review

This section includes modifications to ineligible/noncontributing buildings or structures as an activity that is exempt from cultural resources review. This contradicts the previous section that states no review for buildings is needed at all (even those that are eligible or contributing). These sections should be revised for consistency with each other and with other provisions of the plan.

EXHIBIT H: RECREATION FACILITIES PLAN

This Recreation Facilities Plan expands upon the plans previously presented in the 2011 Detailed Plan and the 2018 Definite Plan, though this Plan proposes removing two recreation areas in addition to those presented in the Detailed Plan and Definite Plan and those analyzed in the 2018 Draft Environmental Impact Report (EIR). Appendix A describes the process of new recreation site identification in detail, including selection criteria and stakeholder coordination efforts. Only those sites within the Federal Energy Regulatory Commission (FERC) project boundary (Parcel B lands) that would provide two types of amenities—whitewater boating and/or fishing access—were considered. The selection criteria and list of proposed projects are very similar to those already presented in previous reports and during stakeholder engagement meetings.

The 2020 Whitewater Boating Study is included as Appendix B. This study identifies conditions of whitewater boating runs, both newly created and modified, that would result from the deconstruction of the dam and drawdown. Particularly, Ward's Canyon, a run that would be located within the Copco No.2 Bypass Roach within Siskiyou County, is anticipated to be one of the most popular runs due to technical challenges and scenic setting provided by the currently non-navigable section of the river.

CHAPTER 2. EXISTING CONDITIONS.

This chapter summarizes recreation use surveys conducted in 2014, which is an improvement from the data used in the 2011 Definite Plan and in the 2018 Draft EIR, which was collected in the 2000s. This deficiency in data was described in a comment by the County on the 2018 Draft EIR, and this Recreation Facilities plan incorporates updated information.

CHAPTER 4. APPROACH TO EXISTING RECREATION FACILITIES AND SITE.

The plan fails to justify the planned removal of two additional recreation areas. The plan identifies the Iron Gate Reservoir-associated recreation areas, the Fall Creek Day Use Area, and the Jenny Creek Day Use Area and Campground for removal. The 2011 Detailed Plan, the 2018 Definite Plan, and the 2018 Draft EIR identified these facilities for retention/modification. This plan describes the Fall Creek Day Use Area as adjacent to proposed new development (including the Fall Creek Hatchery and the Yreka water line modification) and states it therefore may not be suitable for retention/modification. The plan does not provide information regarding the change with respect to the Jenny Creek Day Use Area and Campground. These changes result in two additional recreation areas that would be removed as a result of the project, in addition to those analyzed in the Draft EIR. The reduction in recreation areas results in a loss of recreational resources and should be mitigated.

EXHIBIT J: RESERVOIR AREA MANAGEMENT PLAN

The Reservoir Area Management Plan (RAMP) is intended to support the overall goals of restoring volitional fish passage, stabilizing exposed sediment with native vegetation, and enhancing habitat. Planning phases including vegetation test plot studies have already taken place. The RAMP incudes preconstruction period restoration measures that are complete or in process, and a proposed restoration timeline that includes one to two years for preparation (seed collecting and propagation, invasive plant control, etc.) and five years for plant establishment and monitoring after dam removal. Restoration actions detailed in the RAMP include manual sediment removal and grading, enhancement of longitudinal connectivity and habitat quality of tributaries (including removal of fish passage barriers), development of floodplain features (wetlands, floodplain swales, and side channels), channel complexity/floodplain roughness with the addition of large wood habitat features, and revegetation. Sediment jetting with a barge-mounted water jet is proposed during reservoir drawdown to maximize sediment erosion at Copco No. 1 and Iron Gate Reservoirs, and to reconnect tributaries with the river channel, as needed.

Concerns regarding the plan include the following:

CHAPTER 3. RESTORATION GOALS AND OBJECTIVES

KRRC will use various listed techniques to promote erosion of reservoir deposits during drawdown and implement post-drawdown supplemental sediment evacuation activities. The table in this chapter should include a list of potential techniques that could be used to remove sediment post-drawdown.

CHAPTER 4. ANTICIPATED RESERVOIR CONDITIONS AFTER DRAWDOWN

Morphodynamic modeling of Copco No. 1 Reservoir does not consider fluvial bank erosion, bank failure, erosion from tributaries, springs, or concentrated surface runoff from hillslopes. The anticipated additional sediment needs to be taken into account in the restoration plans.

Following drawdown of Copco No. 1 Reservoir, sediments will drain and dry during warmer daytime temperatures and likely freeze overnight, presenting challenges for young plants. Irrigation may not be possible in upland portions of Copco Valley. The RAMP should outline mitigation strategies for the irrigation and weather constraints.

CHAPTER 5. RESTORATION MEASURES

KRRC should coordinate with the County's Agricultural Department regarding re-vegetation concerns with respect to the spread of noxious weeds as a result of dam removal. The County's Agricultural Department is

responsible for noxious weed control and has concerns over spreading of seeds and plants through sediment release, and moving seeds outside of normal river banks during flood events.

Likewise, KRRC should include the County in discussions with other stakeholders regarding:

- the use of sterile wheat, which may affect native seedbed (Section 5.3.2.1.3); and
- potential grazing of cattle in upland habitats for invasive species control and methods for protecting riparian zones from grazing (Sections 5.3.2.2.1 and 5.3.3.2).

KRRC plans to install temporary and permanent irrigation in newly established riparian areas (Section 5.3.2.1.4). The RAMP should address how long the irrigation will remain in place or the criteria that would be used to evaluate removal.

CHAPTER 6. MONITORING AND ADAPTIVE MANAGEMENT

Monitoring will be performed using visual inspections, physical measurements, ground photo points, aerial photography, and LiDAR (sediment monitoring). The monitoring plans for sediment stabilization/evolution and volitional fish passage include protocols and indicators but lack performance criteria by which success or failure can be adequately measured. The RAMP should include such performance criteria. It is not possible to implement adaptive management without identifying performance criteria in advance then designing and implementing a monitoring program to gather data necessary to allow for evaluation of conservation measures using those performance criteria.

EXHIBIT K: RESERVOIR DRAWDOWN AND DIVERSION PLAN

The 2021 Reservoir Drawdown and Diversion Plan describes the proposed drawdown methods, procedures, schedules, and monitoring efforts the KRRC will implement as part of the restoration activities associated with the deconstruction of four hydroelectric developments on the Klamath River and comprises the following subplans:

- California Reservoir Drawdown and Diversion Plan;
- California Slope Stability Monitoring Plan; and
- Oregon Reservoir Drawdown and Diversion Plan.

The following are previously expressed concerns that do not seem to be addressed in the Reservoir Drawdown and Diversion Plan or associated subplans:

- J.C. Boyle Dam: Instead of stating the amounts anticipated, KRRC states that the suspended sediment concentrations under the new proposed drawdown are not expected to be greater than the amounts identified in the U.S. Bureau of Reclamation's 2012 Detailed Plan (approximately 0–8 mg/L). This assumption is almost certain to be violated given observations of the Condit Dam Decommissioning and Removal Project where suspended sediment concentrations exceeded 10,000 mg/L.
- Copco No. 1 Dam: Similar to the JC Boyle Dam, KRRC states that the sediment concentrations under the new proposed drawdown are not expected to be greater than the amounts identified in U.S. Bureau of Reclamation's 2012 Detailed Plan (approximately 0–200 mg/L). It is more likely that suspended sediment concentrations will exceed 10,000 mg/L (PacifiCorp Energy 2012), since over 100 years of sediment has accumulated in the bottom of the reservoir. As another example, the Marmot Dam Removal Project in Oregon, which was a much smaller project than the proposed Lower Klamath Project, also produced suspended sediment concentrations exceeding 10,000 mg/L (Major et al. 2012).

- Iron Gate Dam: Similar to the JC Boyle and Copco No. 1 Dams, KRRC states that the sediment concentrations under the new proposed drawdown are not expected to be greater than the amounts identified in U.S. Bureau of Reclamation's 2012 Detailed Plan (approximately 0–1,000 mg/L). It is more realistic to expect that concentrations will exceed 10,000 mg/L (Major et al. 2012; PacifiCorp Energy 2012) because the dams are being removed simultaneously and the Iron Gate Dam monitoring site will be measuring the sum total of suspended sediments from all four dam sites.

The difference in the above sediment concentrations, of one or more orders of magnitude, has significant environmental implications that KRRC is unlikely to analyze based on the false assumptions described above. The failure to analyze significant impacts is a major shortcoming that could trigger the obligation to conduct supplemental environmental analysis.

In addition to the previous comments that have not been addressed, additional concerns regarding the plan include the following:

APPENDIX A. CALIFORNIA RESERVOIR DRAWDOWN AND DIVERSION PLAN

CHAPTER 2. DRAWDOWN AND DIVERSION PROCEDURES

Section 2.1.2 Slope Stability Analysis

KRRC describes steep, weak shoreline slopes, undercutting erosion, two debris slides, a natural terrain landslide, and rock falls in the vicinity of Copco No. 1 Reservoir. Residential properties occur around the southwest and east sectors of the Copco No. 1 Reservoir. Stability analysis results for this locale are shown on Figure 2-1 Appendix C of this subplan. However, Appendix C – Terrain stability maps, are redacted from this report.

- KRRC should provide the terrain stability maps for the County's review.
- The level of risk to the properties and proposed mitigation measures should be identified.
- Detailed plans for any demolition of residences should be analyzed and included in the plan.

Section 2.2 Drawdown and Diversion Procedures

The reservoir drawdown analysis should be revisited to either lower or justify the specified rate of five feet per day for the drawdown. A slower drawdown would likely decrease the episodic nature of the reservoir sediment erosion and may decrease slope stability issues.

Section 2.4 Flood Frequency and Hydrological Evaluation

The drawdown analysis evaluates flood frequency at each project to illustrate the range of possible peak water levels that could occur. Graphs are presented illustrating water surface levels, but it is not clear whether the graphs illustrate water levels after dam removal, during dam removal, or both.

- Daily average inflows, total outflows, and outflows for each outlet structure are mentioned but not plotted or discussed.
- KRRC should explain in greater detail the model output and what might be expected under the best and worst water year scenarios.

APPENDIX C. OREGON RESERVOIR DRAWDOWN AND DIVERSION PLAN

SECTION 3.3 FLOOD FREQUENCY AND HYDROLOGICAL EVALUATION

The drawdown analysis evaluates flood frequency at each project to illustrate the range of possible peak water levels that could occur. Graphs are presented illustrating water surface levels, but it is not clear whether the graphs illustrate water levels after dam removal, during dam removal, or both.

- Daily average inflows, total outflows, and outflows for each outlet structure are mentioned but not plotted or discussed.
- KRRC should explain in greater detail the model output and what might be expected under the best and worst water year scenarios.

EXHIBIT L: SEDIMENT DEPOSIT REMEDIATION PLAN

The 2021 Sediment Deposit Remediation Plan is a new management plan that was not included in previous submittals by KRRC.

APPENDIX A. CALIFORNIA SEDIMENT DEPOSIT REMEDIATION PLAN

The purpose of the California Sediment Deposit Remediation Plan is to state the measures that KRRC will implement to assess and remediate sediment deposits along the Klamath River from below Iron Gate Dam to the mouth of the Klamath Estuary that are due to reservoir drawdown activities.

Concerns regarding the plan include the following:

The plan states that “the Renewal Corporation will only assess sediment deposits on parcels with a current or potential residential or agricultural land use, for which the property owner has notified the Renewal Corporation of a potential sediment deposit that may be associated with reservoir drawdown activities.” The plan as written drastically limits the scope of the remediation plan by scope, location, and process, such that it is inadequate to properly address arsenic-contaminated sediment remediation in comparison with federal and state standards. The plan should include an establishment of baseline arsenic along the entire river reach from the Iron Gate Dam to the outfall to the Pacific Ocean prior to drawdown and then conduct a post-drawdown analysis of the entire reach to identify and remediate arsenic-contaminated sediment deposits with the pre- and post-drawdown sampling locations developed in quantity and location to provide a scientifically defensible study of the overall reach. Remediation of specific private landowners’ sites, as described in Section 2.0, should then be implemented as a secondary remediation exercise for targeted deposits of arsenic-contaminated sediment deposits.

The plan does not address the deposition of reservoir sediments that have the potential to negatively impact the aquatic habitat of the river below the Iron Gate Dam. In the Del Norte Sediment Monitoring Plan Section 2.3.1, it is stated that “[t]he sediment found within the existing reservoirs at J.C. Boyle, Copco No. 1, and Iron Gate is fine-grained with a high organic material content. The sediment has little sand content and has a high water content and more than 84 percent of the total reservoir sediment volume is silt or finer.” Further, in the Del Norte Sediment Monitoring Plan Section 2.3.1, it is stated that “[t]he total maximum volume of sediment expected to be released during the dam removal is a fraction of the total sediment load that currently discharges at the Klamath River mouth, and the Trinity River watershed is and will continue to be the largest sediment source within the Klamath River Basin.” However, the Del Norte Sediment Monitoring Plan Section 2.3.1.2 states that “[t]he existing sediment discharging into the Pacific Ocean has a larger grain-size distribution with limited fine-

grained silts and clays compared to the expected drawdown period sediment profile to be released to the River below Iron Gate Dam." Therefore, although the sediment loading from the drawdown period is only a fraction of the total sediment load entering the river and, ultimately, the Pacific Ocean, the sediments from the drawdown (silts and clays) will be much finer than those typically processed through the river under current conditions. As such, the sediment transport and deposition processes in the river during and following the drawdown will likely be modified in response to the dramatic change in grain-size distribution. The California Sediment Remediation Plan should address this issue through predictive sediment transport modeling and/or post-drawdown sediment aggradation testing to ensure that these excess fine sediments do not negatively affect the river substrate related to the necessary sediment substrates, riverine hydraulics, and associated habitat to support passage, egg laying, hatching, and rearing of native fish and other aquatic species.

EXHIBIT M: TERRESTRIAL AND WILDLIFE MANAGEMENT PLAN

The Terrestrial and Wildlife Management Plan consists of three subplans:

- California Terrestrial and Wildlife Management Plan;
- Oregon Terrestrial and Wildlife Management Plan; and
- Bald and Golden Eagle Management Plan (not drafted).

The Terrestrial and Wildlife Management Plan identifies the measures KRRC will implement to protect known or suspected special-status species present (state or federally protected). Additional measures are outlined for bats, nesting birds, and other species as BMPs. The lack of applicable information and a management plan for bald and golden eagles in this plan is concerning and does not allow for a determination of adequacy in meeting regulatory requirements for protection of these species. Overall, the plan lacks the detail and specific protocol or guidance needed to meet this stated purpose.

KRRC's obligations with respect to implementation of the terrestrial wildlife measures are also subject to a determination of "if practicable." The plan does not provide sufficient details to illustrate how KRRC will make such a determination.

Further, KRRC's 2018 and 2019 survey areas, which are generally limited to within 0.25 mile of the dams and structures to be removed, should be expanded, particularly for amphibian surveys. This survey area does not include downstream impacts, especially for species that utilize emergent wetlands and riparian areas. There are wetland and riparian habitats that will be altered by changing water flows and sedimentation. These areas are not currently evaluated in the survey area and therefore cannot be adequately evaluated for impacts. These areas need baseline data on the species that currently occupy, or could occupy, this habitat in order to adequately evaluate impacts of the project.

The plan does not include adequate protections for wildlife species that are protected by the California Endangered Species Act (CESA) and Oregon state law (Oregon Revised Statutes 496.171-496.192). Additionally, some species listed as potentially occurring or known to occur within the survey area or in downstream areas of the Klamath River are not addressed in this plan. The tricolored blackbird (*Agelaius tricolor*) and foothill yellow-legged frog are listed under CESA, and the Oregon spotted frog (*Rana pretiosa*) and foothill yellow-legged frog (*Rana boylii*) are candidates for listing under Oregon state law.

APPENDIX A. CALIFORNIA TERRESTRIAL AND WILDLIFE MANAGEMENT PLAN

SECTION 3.1.1 WESTERN POND TURTLE VES SURVEYS AND RESCUE AND RELOCATION – CONSTRUCTION

KRRC states that "[d]epending upon the timing of the survey, individuals may or may not be easily located. It is unlikely that nest sites and/or hibernating/aestivating individuals will be observed during VES Surveys in the winter months; however, dens, burrows or [Western Pond Turtles (WPTs)] may be observed outside of winter months." There should be considerations for construction work that may take place during the winter, when VES surveys may not detect WPTs within the disturbance footprint.

SECTION 3.3.2 NESTING BIRD DISTURBANCE AVOIDANCE

The plan lacks a discussion of the regulatory requirements for nesting migratory birds under the Migratory Bird Treaty Act (MBTA) and California state law (California Fish and Game Code Section 3503). After a regulatory rollback, it should be noted that the U.S. Fish and Wildlife Service has proposed to change the definition of "take" under the MBTA to be more encompassing. The plan also lacks specific protocol procedures related to survey methodology, discovery, and notification for active nests; procedures for changes to buffer distances or removal of active nests; and monitoring. Protecting active nests involves establishing disturbance-free buffers within which construction activities are restricted. Establishing and maintaining buffers is designed to prevent take of active nests, eggs, nestlings, or nesting birds as a result of construction activities. The plan should describe proposed measures to avoid take or adverse effects to nests, such as buffer distances from active nests. Spatial buffers for active migratory bird nests are not discussed in the plan, though they are included as an important step in the U.S. Fish and Wildlife Service Nationwide Standard Conservation Measures for Stressor Management of nesting birds. These measures should be based on the specific nature of the bird species, conservation status, and other pertinent factors.

SECTION 3.3.2.1 GREAT BLUE HERON

The plan should disclose how far the Great Blue Heron rookery is from the project area and any resulting impacts.

SECTION 3.3.2.2 CLIFF SWALLOW

The plan states that "[c]liff swallows are also known to use bridges for nesting habitat; however, the proposed bridge improvement activities are not anticipated to significantly impact nesting behavior and nests will not be removed." The plan should describe how it was concluded that bridge improvement activities would not impact swallow nesting behavior.

SECTION 3.6 BATS

The plan lacks specific protocol procedures related to survey methodology, exclusion strategy, and monitoring. Survey reports included in Appendix A note that a management plan for bats would be developed in 2019, but it is not included in the plan.

SECTION 3.9 HERBICIDE APPLICATION

The plan states that Exhibit J Reservoir Area Management Plan identifies KRRC's management measures to avoid impacts to special-status species. The RAMP does not include considerations for special-status species,

and special-status plant species are not discussed in the plan. These considerations should be included in the plan.

The comments above also apply to Appendix B Oregon Terrestrial and Wildlife Management Plan.

EXHIBIT N: WASTE DISPOSAL AND HAZARDOUS MATERIALS MANAGEMENT PLAN

This review focuses on potential issues related to asbestos-containing concrete. Asbestos-containing concrete does not appear to have been used for residence and small building foundations at the Copco No. 1, Copco No. 2, and J. C. Boyle Developments and for the fish holding, fish ladder, and powerhouse structures at the Iron Gate Development and the fish ladder at the J. C. Boyle Development. However, there is no indication that asbestos sampling and analysis of the concrete dams at the Copco No. 1, Copco No. 2, and J. C. Boyle Developments was conducted. Asbestos sampling should be conducted because asbestos-reinforced concrete was used extensively throughout the United States from the early to late 1900s, and concrete mixes had asbestos contents that ranged from 2% to 10% by weight. Construction of these dams was completed in 1921 (Copco No. 1), 1925 (Copco No. 2), and 1958 (J. C. Boyle); all of these dates were in the time frame of nationwide usage of asbestos-reinforced concrete. An asbestos concentration range of 2% to 10% by weight in the concrete of the three dams indicates that a total of approximately 826 to 4,126 tons of asbestos are present in the dams themselves. If 1% of the asbestos in those structures was released during explosive demolition of those dams, approximately 8 to 41 tons of asbestos could be released to the environment. To properly assess the potential consequences of explosive demolition releases from the dams, analysis of the asbestos content of the concrete of the dams is required.

EXHIBIT O: WATER QUALITY MONITORING AND MANAGEMENT PLAN

The plan describes the methodology and procedures for evaluating water quality conditions associated with the decommissioning of the four lower dams on the Klamath River. There are two separate plans: one for the state of Oregon and one for the state of California. The two plans appear to be complete, detailing personnel, equipment, analytical labs, and schedules. However, one comment provided earlier on the 2018 Definite Plan by Siskiyou County has not been adequately addressed:

- The Klamath River Total Maximum Daily Load (TMDL) Model includes the false assumption that all waters that enter the state of California are fully compliant with applicable TMDLs. The response to this comment was to withdrawal the Oregon TMDL Model. In addition, the North Coast Regional Board (NCRB) found uncertainty associated with the Klamath TMDL models to be minimal relative to source load reductions. As a follow-up, the NCRB stated that, if updates to the California Model demonstrate that TMDL target allocations should be adjusted, the NCRB staff would propose changes to the TMDL, and that no changes were proposed. This is a circular argument and needs further explanation.

Document Content(s)

APPENDIX F: UNITED STATES ARMY CORPS OF ENGINEERS 404 PERMIT APPLICATION

NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

Paul S. Weiland
D 949.477.7644
pweiland@nossaman.com

Refer To File # 290380-0004

VIA EMAIL

July 8, 2021

L. Kasey Sirkin
San Francisco District, Regulatory Division
Eureka Field Office
601 Startare Drive, Box 14
Eureka, California 95501
l.k.sirkin@usace.army.mil

Re: Klamath River Dam Removal Project, 2003-27985

To Whom It May Concern:

We are outside counsel to Siskiyou County, and we are writing with respect to the application submitted by the Klamath River Renewal Corporation for a permit under section 404 of the Clean Water Act for "the placement of approximately 212,000 cubic yards of fill (permanent and/or temporary) within 20 acres of jurisdictional waters in the Klamath River." San Francisco District Public Notice, Klamath River Dam Removal Project p. 1 (June 7. 2021) (hereinafter "Public Notice"). The County has significant, unaddressed concerns regarding the adverse impacts of the proposed Klamath River Dam Removal Project (Project) on waters of the United States and other biotic and abiotic components of the Klamath River and its watershed. The County intends to provide more detailed comments on the Draft Environmental Impact Statement for the proposed Project when it is made available by the Federal Energy Regulatory Commission (FERC) and the Corps. In the meantime, we respectfully request that the U.S. Army Corps of Engineers (Corps) consider the following critical comments on the Renewal Corporation's application.

First, the Corps must assure that the project description is detailed enough to facilitate all required analyses and evaluations, that the project fulfills an independent purpose and need, and that the project satisfied a public interest review. The project purposes set forth by the applicant and described by the Corps in the Public Notice ("to provide volitional fish passage on the mainstem Klamath River" and "to remove dam associated infrastructure along approximately 41 miles of main stem Klamath River to restore volitional fish passage") are too narrow to allow the Corps to consider a reasonable and appropriate range of alternatives consistent with its obligations under section 404(b)(1), 33 U.S.C. § 1344(b)(1). Even if the Renewal Corporation and the Corps opted against pursuing a sensible project objective such as "to provide for near-term and long-term benefits for communities in the Klamath region and to protect sensitive wildlife native to that region along with the ecosystem that supports such wildlife" or "to contribute to the sustainable management of the Klamath region including sensitive wildlife native to that region along with the ecosystem that supports such wildlife," a more appropriate and still

narrowly-tailored objective would be "to contribute to the conservation of sensitive fish species native to the Klamath River."

If the Renewal Corporation and Corps stick with the parochial project description described in the Public Notice, the outcome is pre-determined because no option other than dam removal fulfills that objective. But this singular focus on volitional fish passage (i) disregards the certain, adverse, near-term effects on salmon, steelhead, and other fish native to the Klamath River that will be caused by dam removal and (ii) is based on the false premises that long-term benefits for salmon and steelhead are certain or near certain (for contrary views see the reports of independent experts, Daniel Goodman et al., Scientific Assessment of Two Dam Removal Alternatives on Chinook Salmon (2011); Thomas Dunne et al., Scientific Assessment of Two Dam Removal Alternatives on Coho Salmon and Steelhead (2011)) and that passage upstream was precluded historically by one or more natural barriers.[1]

Second, the Corps must assure that the project design demonstrates, as a first priority, that impacts to waters of the United States are avoided and minimized to the maximum extent practicable before mitigation is considered and evaluated. *Memorandum of Agreement Between The Department of the Army and The Environmental Protection Agency on the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines* (1990). The Renewal Corporation has almost certainly underestimated the quantity of jurisdictional waters that will be impacted by the proposed Project. The Renewal Corporation and Corps should plainly disclose the method used to estimate the upstream impacts associated with loss of riparian, wetland, and open water areas and downstream impacts associated with fill of riparian, wetland, and open water areas stemming from massive quantities of sediment, including model selection and model results. Neither the Public Notice nor the Supplemental Project Description available on the Corps website (https://www.nwp.usace.army.mil/Portals/24/docs/regulatory/publicnotices/NWP-2020-25_figures.pdf) include maps that display the impact areas and mitigation or tables that quantify the impacts and mitigation by type. And, to our knowledge, the Renewal Corporation has not made available its jurisdictional delineation for the proposed Project either as an attachment to the Definite Plan submitted to FERC or on its public website.

Third, the Corps must not issue a permit for a discharge of dredged or fill material "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a). The alternative that survives this analysis is the least environmentally damaging practicable alternative (LEDPA). For purposes of determining the LEDPA, an alternative is "practicable" if "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." *Id*. § 230.10(a)(2); *see also id*. § 230.3(l). As explained above, if the Corps allows the Renewal Corporation to push ahead with an unduly narrow project purpose then the

[1] The two reports authored by panels of independent scientific reviewers represented the best available scientific information regarding the effects of dam removal on the lower Klamath River on coho and chinook salmon at the time they were finalized in 2011. But those reports are a decade old at this point and the Renewal Corporation has to date refused to work with interested stakeholders to impanel similarly qualified expert panels to assess the effects of dam removal on the two salmonids based on contemporary scientific information. As a consequence, the reports remain the most authoritative analyses of the subject matter and call into question predictions made by the Renewal Corporation and its allies.

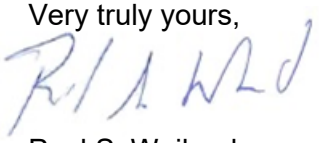
alternatives analysis and identification of a LEDPA are unlikely to fulfill the spirit and letter of section 404, 33 U.S.C. 1344, and its implementing regulations including 40 C.F.R. pt. 230.

Fourth, the Public Notice includes a section on "other local approvals," Public Notice, p. 5, but fails to identify County permitting requirements applicable to the proposed Project, for example, if the Renewal Corporation intends to establish one or more solid waste disposal sites within the County or construct temporary or permanent structures including residential, commercial, and/or residential structures on site. The Corps should require the Renewal Corporation to disclose a comprehensive list of approvals applicable to the proposed Project rather than engaging in selective disclosure.

Finally, the Corps should be aware of the devastating effects that the proposed Project will have on the critically endangered Lost River sucker (*Deltistes luxatus*) and shortnose sucker *(Chasmistes brevirostris)*. These species, which are protected under the Endangered Species Act, are present in the lower Klamath reservoirs and are not expected to survive in riverine conditions. Unfortunately, while the County has consistently and publicly urged the Renewal Corporation and the State of California to conduct rigorous monitoring for the species in the reservoirs to determine the age structure and status of the populations, to our knowledge minimal surveying has been completed. In addition, the Renewal Corporation's plan to address the extirpation of the species in the reservoirs – to harvest and relocate them – will result on losses during the harvest and relocation process and is characterized by a lack of specificity including regarding the availability of water bodies capable of supporting the suckers over time. The Biological Assessment for the proposed Project indicates that only 100 suckers can be translocated to the Klamath National Fish Hatchery and the remaining fish (up to 3000) would be translocated to Tule Lake even while recognizing that the lake is maintained by agricultural return flow and is as a consequence poor quality habitat in addition to the fact that the lake is periodically drawn down. Klamath River Renewal Corporation, Lower Klamath Project Biological Assessment (March 2021).

We urge the Corps to give careful consideration to these comments and act consistent with its obligations under the Clean Water Act and its implementing regulations, as well as section 7(a)(1) and 7(a)(2) of the Endangered Species Act, 16 U.S.C. 1536(a)(1), (2).

Very truly yours,



Paul S. Weiland
Nossaman LLP

PSW:art

APPENDIX G: NOTICE OF INTENT TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

Paul S. Weiland
D 949.477.7644
pweiland@nossaman.com

Refer To File # 290380-0004

VIA FERC ONLINE

August 18, 2021

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Comment on the Notice of Intent to Prepare the Lower Klamath Project Environmental Impact Statement

Dear Secretary Bose:

We are writing on behalf of Siskiyou County ("County") to express our significant concerns regarding the Notice of Intent ("NOI") to Prepare an Environmental Impact Statement ("EIS") for the Proposed Lower Klamath Project Surrender and Removal ("Project") published by the Federal Energy Regulatory Commission ("FERC") on behalf of the Klamath River Renewal Corporation ("KRRC") and PacifiCorp in the Federal Register on June 24, 2021 (Docket Nos. 14803-001 and 2082-063). Detailed concerns regarding the NOI and EIS are included in SWCA's "Comments Regarding the Notice of Intent to Prepare the Lower Klamath Project Environmental Impact Statement/SWCA Project No. 54921," attached hereto as Attachment I. Additionally, the County incorporates its comments submitted to the U.S. Army Corps of Engineers ("Corps") on July 8, 2021, regarding KRRC and PacifiCorp's application for a permit under section 404 of the Clean Water Act, attached hereto as Attachment II.

As FERC is aware, KRRC and PacifiCorp have submitted applications to FERC for hydropower license transfer and surrender to decommission and remove four lower Klamath River dams—three of which are located within Siskiyou County. On multiple occasions, the County has expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as other environmental and societal impacts, including air quality, climate change, cultural resources, hazardous materials, and traffic impacts, in addition to socioeconomic impacts on the local community. *See, e.g.*, *PacifiCorp*, 162 FERC ¶ 61,236 at ¶ 28 (Mar. 15, 2018). The County has a strong vested interest in ensuring that the EIS considers the Project's entire range of consequences on the County and its residents.

As set forth in SWCA's technical comments (Attachment I), the Project's environmental review documentation, as required under the National Environmental Policy Act, remains inadequate. Below is a brief summary of the County's concerns regarding the NOI and Project documentation, as further detailed in Attachment I.

- The NOI does not indicate which alternatives will be analyzed in the EIS; the County requests analysis of a "Phased Approach Alternative" that would provide for removal of the dams one at a time and a Federal takeover approach that would provide for the Federal government to take over the lower Klamath Project, retain the facilities, and improve fish passage while reducing environmental impacts associated with removal.

- The NOI's statement describing the purpose and need for the Project is improperly narrow, essentially precluding any alternative that has the potential to reduce the significant environmental impacts as compared to the KRRC's and PacifiCorp's dam removal vision. "NEPA prohibits the agency from drawing an 'unreasonably narrow' purpose and need statement so as to exclude otherwise feasible alternatives for the sake of satisfying the wants and wishes of a proponent." J. Matthew Haws, Analysis paralysis: rethinking the court's role in evaluating EIS reasonable alternatives, 2012 U. Ill. L. Rev. 537, 559 (2012) (citing multiple cases).

- The Project documentation relies on outdated technical studies and surveys.

- Proposed mitigation measures for fire suppression should be more detailed and specific.

- Project impacts on property values should be discussed in terms of environmental justice, and related mitigation measures should be considered. FERC should also ensure that the Project aligns with federal environmental justice policies.

- Additional surveys and analysis regarding impacts to the federally endangered Lost River sucker and shortnose sucker should be completed and the results reported in the EIS in order to avoid jeopardizing the continued existence of those species.

- The EIS should include an evaluation of the potential negative impacts related to suspended sediments and a professional engineering analysis of rim stability.

- The EIS should include a determination by the California and Oregon State Historic Preservation Offices regarding the Klamath River Hydroelectric Project District's eligibility for listing in the National Register of Historic Places.

- The permanent loss of reservoir-based recreation activities caused by dam removal should be considered a significant impact requiring mitigation.

- The Project documentation does not address how proposed new recreational facilities will be maintained.

- The EIS should explain with more specificity the conclusion that the Project would mitigate all potential groundwater supply impairments post-drawdown.

As briefly mentioned above, and as further discussed in Attachment I, the NOI's statement describing the purpose and need of the Project is too narrow to allow FERC to consider a reasonable and appropriate range of alternatives. The purpose and need stated in the NOI is "to surrender the project license and remove the project features to achieve a free-flowing condition and volitional fish passage, site remediation, and restoration." This statement is even more narrow than the Project purpose described by the Corps in the Public Notice regarding KRRC and PacifiCorp's section 404 permit application. For the same reasons described in the County's letter to the Corps (Attachment II), the NOI's even more narrowly stated Project purpose is unlawful. Even if KRRC and FERC opted against pursuing a sensible project objective such as "to provide for near-term and long-term benefits for communities in the Klamath region and to protect sensitive wildlife native to that region along with the ecosystem that supports such wildlife" or "to contribute to the sustainable management of the Klamath region including sensitive wildlife native to that region along with the ecosystem that supports such wildlife," a more appropriate and still narrowly-tailored objective would be "to contribute to the conservation of sensitive fish species native to the Klamath River."

For the foregoing reasons, and as further discussed in detail in Attachment I, the County requests that FERC analyze the full range of the Project's impacts in the EIS and address the County's unresolved concerns. Please do not hesitate to contact us with questions.

Very truly yours,

Paul S. Weiland
Nossaman LLP

Attachments

ATTACHMENT I

INTRODUCTION

SWCA Environmental Consultants (SWCA) has reviewed the Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS) for the Proposed Lower Klamath Project Surrender and Removal. The NOI for the Lower Klamath Project (Docket Nos. 14803-001 and 2082-063) was published by the Federal Energy Regulatory Commission (FERC) on behalf of the Klamath River Renewal Corporation and PacifiCorp (applicants) in the Federal Register on June 24, 2021.

Included below are comments on issue areas that have been raised by the County previously and that we believe should be adequately analyzed by FERC in the EIS.

PRIOR COMMENTING OPPORTUNITIES

Prior to the publication of the NOI and start of the FERC National Environmental Policy Act (NEPA) process, the County provided comments on numerous documents related to the project. Comment letters prepared by the County to address deficiencies in the project, impact analysis, and mitigation measures include the following:

- Draft Definite Plan for the Lower Klamath Project ("Definite Plan") (dated October 16, 2018)
- Draft Environmental Impact Report (EIR) for the Lower Klamath Project Relicense Project (dated February 26, 2019)
- Draft Recreation Plan for the Lower Klamath Project (dated October 4, 2019)
- FERC Supplemental Surrender Application for the Lower Klamath Project (dated June 3, 2021)

The previous comment letters have been attached for the NEPA administrative record. For the most part, prior comments have yet to be adequately addressed by the applicants or lead agencies.

ALTERNATIVES

The NOI does not give an indication of the alternatives that will be analyzed in the NEPA document. The County suggests including a "Phased Approach" alternative. The Phased Approach Alternative would include the removal of the dams one at a time. After the initial dam is removed (presumed to be Copco Dam) and the health of the environment is able to be adequately monitored and determined to meet a certain biological threshold, the second upstream dam could be removed, and so on. This would provide a more scientifically driven approach to dam removal and ensure that sensitive environmental resources are protected from unproven, potentially catastrophic action related to simultaneous removal of all dams.

In addition, the proposed action, as described in the original Klamath Facilities Final Environmental Impact Statement/Environmental Impact Report prepared by the U.S. Department of the Interior and California Department of Fish and Game in December 2012 required federal legislation to execute the project (Vol I. page 1-3 of the Final EIR/EIS). Federal legislation was a requirement of the Klamath Hydroelectric Settlement Agreement. The proposed action in the FERC EIS should consider federal legislation as the ultimate approval for the project given the scale of the dam removal and potential environmental impacts on a regional scale.

FERC should also consider a "Federal Takeover" alternative. The Federal Takeover alternative would include continued operation of the dams by the federal government (presumed to be the Bureau of Reclamation). The Federal Takeover alternative would reduce environmental impacts as compared to the proposed action by providing for the continued generation of clean energy, successful fish passage, and retention of other reservoir benefits including wildfire fighting capacity, eliminating impacts to suckers, and eliminating impacts to adjacent residential uses.

PURPOSE AND NEED

The purpose and need stated in the NOI for the proposed action is to surrender the project license and remove the project features to achieve a free-flowing condition and volitional fish passage, site remediation, and restoration. This purpose and need statement is unnecessarily narrow and points to the single solution of dam removal. The previous EIR/EIS prepared in 2012 and the Klamath Hydrologic Settlement Agreement noted that the project would only proceed if the removal of the four dam facilities would advance restoration salmonid populations of the Klamath Basin. The purpose and need should be expanded to include some scientific consensus that dam removal would be beneficial. This broadening of the purpose and need statement would allow for more consideration of the Phased Approach Alternative discussed above.

RELIANCE ON OUTDATED TECHNICAL STUDIES AND SURVEYS

As we noted throughout our comments on the Draft EIR, the technical studies and surveys that have been relied upon are generally more than a decade old, and are sometimes much older. For example, the Lost River and shortnose sucker surveys that were relied upon for findings in the EIR are from sampling completed in 1998 and 1999.[1] To be considered an accurate assessment of impacts from the proposed action, FERC should be mobilizing new surveys for the EIS.

ENVIRONMENTAL RESOURCES

FIRE SUPPRESION

The NOI identified fire suppression as an expected impact, and the Definite Plan has outlined a Fire Management Plan as part of the proposed project. As the County has mentioned in past comments, wildfire suppression is critically important for the health and safety of the community and environment. Mitigation for fire suppression in the EIS should be detailed and specific. The Definite Plan states that aerial analysis shows deep pools with conditions suitable for helicopter filling near the three reservoirs. However, it should be noted that helicopters may not be able to fill their water tanks in the vicinity of the post-drawdown reservoirs due to the canyons that will develop around the rim of the existing reservoirs and downstream. Helicopters require relatively wide, flat topography in order to draft water safely. It is also possible that many of the existing pools will fill with silt and sediment released during dam removal. Under this scenario, it is possible to imagine an increase in travel time and firefighting limitations during dam removal.

The mitigation proposed in the Definite Plan includes dry hydrants as water supply infrastructure for post-removal firefighting. In addition to dry hydrants, mitigation in the EIS should also include other permanent sources of water that can be used for aircraft firefighting activities. This is especially critical due to the possibility that river conditions will be inadequate for water tank filling post-drawdown, as noted above. The EIS should improve on the Definite Plan and identify permanent water sources (such as dip tanks) that will be strategically placed along the Klamath River corridor to support aircraft firefighting activities. The permanent water sources could be filled with Klamath River water extracted via the proposed dry hydrants. Given the devastating wildfires that have occurred and will likely continue to occur throughout the project area, every precaution should be taken to mitigate fire risk.

---

[1] Perkins, D.J., J. Kann, and G. Scoppettone. 2000. *The Role of Poor Water Quality and Fish Kills in the Decline of Endangered Lost River and Shortnose Suckers in the Upper Klamath Lake*. Final Report. Prepared by U.S. Geological Survey, Biological Resources Division for Bureau of Reclamation, Klamath Falls Project Office, Klamath Falls, Oregon.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The NOI notes expected impacts on property values due to dam removal. Although this is true and certainly an impact that should be explored, the EIS should also explicitly address these effects as impacts to environmental justice communities. Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and associated mitigation measures for impacts to socioeconomic and environmental justice communities should be considered. Mitigation measures that may be relevant to environmental justice impacts include the recruitment of local labor, fair financial compensation for impacts to property values, training and development, and school funding, among others.

FERC should also ensure that the project meets the policies of EO 13985, Advancing Racial Equity and Support for Underserved Communities through the Federal Government. The intent of EO 13985 is to advance equity across the federal government and ensure that underserved communities benefit from the programs and policies that are enacted.

SPECIES PROTECTED UNDER THE ENDANGERED SPECIES ACT

Lost River and Shortnose Suckers

Previous analysis for the Lost River sucker (Deltistes luxatus) and shortnose sucker (Chasmistes brevirostris) species conducted during the EIR has concluded that dam removal would only impact “sink” populations in the reservoirs downstream of Keno Dam. This was done without adequate justification (e.g., genetics, current population structure, etc.). For instance, the sucker populations downstream of Keno Dam should be denoted as metapopulations that have broken off from the main populations upstream to form new groups in the lower river, thus expanding the range of the endangered populations. This is a natural phenomena in populations that are not closed and individuals can freely immigrate or emigrate from the main population. As noted above, surveys were completed in 1998 and 1999 and do not reflect existing conditions. Conditions in the reservoirs, including increased water temperature, have changed because ongoing drought is having an unknown effect on the species. In addition, the EIR (page 3-335) states that because the Lost River and shortnose suckers impacted by the project are located in reservoirs downstream of Keno Dam, they do not represent “take” under the Endangered Species Act (ESA) because this would be outside of their historic range. Regardless of the historic range of the species, the presence of a federally listed endangered species should ensure that it receives full protection under the ESA. By labeling the population as a “sink” without appropriate scientific data and disregarding the existing extent of the species, the lead federal agency and U.S. Fish and Wildlife Service (USFWS) would potentially be violating the ESA. As such, additional surveys and analysis should be provided in the EIS to make a determination of the status of the sucker species and whether or not Lost River and shortnose suckers are genetically linked to those in Keno Reservoir and upper Klamath Lake. Furthermore, the USFWS states both species have low resiliency. Disregarding Lost River and shortnose suckers downstream of Upper Klamath Lake on the basis of hybridization and categorization of these as a “sink” population reduces resiliency of these species and their ability to rebound after catastrophic events. Therefore, the USFWS should update information on the degree of hybridization in these species downstream of Upper Klamath Lake prior to establishing them as a “sink” population.

SEDIMENT-RELATED IMPACTS

The EIR (page 3-99) and Definite Plan (Appendix I, page 31) analyses rely on the assumption that suspended sediment will be quickly flushed downstream. The duration of high suspended sediment concentrations depends on how much reservoir sediment is initially flushed from each reservoir and the water year conditions that are exhibited during the dam removal year. Adverse impacts from downstream sedimentation could last for weeks, or they could persist for months, even years. Therefore, the suspended sediments analysis in the EIS should also assess the worst-case scenario and possible negative impacts to salmonids (Steelhead, Chinook, and Coho salmon) and other riverine and estuarine species.

The Definite Plan (Appendix E) alludes to rim instability issues around the reservoir; however, limited data and analysis have been initiated. Given the potential impacts to residences and infrastructure around the reservoirs from landslides and rim instability, the EIS should include a professional engineering analysis of rim stability and apply any necessary mitigation measures. Rim instability could also have implications for aquatic impacts and suspended sediment in the water column.

CULTURAL RESOURCES

The Definite Plan (Appendix L) and EIR (page 3-805) state that the Klamath River Hydroelectric Project District (District) is eligible for listing in the National Register of Historic Places (NRHP) for its association with the industrial and economic development of southern Oregon and northern California but that the California and Oregon State Historic Preservation Offices (SHPOs) have not concurred with this eligibility recommendation. Given the potential detrimental impacts to the NRHP-eligible District, concurrence from the SHPOs and the ultimate status of the District should be ascertained during the Section 106 of the National Historic Preservation Act process, and the results should be provided in the EIS.

RECREATION

The removal of the Copco No. 1 and Iron Gate reservoirs will eliminate popular reservoir-based recreational opportunities for area residents and visitors. The EIR (page 3-1007) notes the permanent loss of reservoir-based recreation activities such flat-water fishing, power boating, water skiing, lake swimming, and tubing. However, the EIR concluded that due the existing facilities in the area (26 to 46 miles away), there would be no significant impact or loss of rare or unique recreational facilities. The permanent loss of two popular and distinctive recreation destinations should almost certainly be considered a significant impact requiring mitigation. It should be noted that the other lakes and reservoirs in the region that are listed in the EIR as being replacement reservoir-based recreation facilities are located in Oregon. Reaching these facilities would require passing through Siskiyou Summit, which is notably challenging with a trailer.

As we have noted in our comments on the Definite Plan and EIR, the proposed project includes the addition of several new river-based recreation opportunities, including river access points, campsites, day use amenities, and trails. The Definite Plan and EIR do not sufficiently identify how these facilities will be maintained.

WATER SUPPLY/GROUNDWATER

The EIR (page 3-664) states that the project could impact groundwater resources and wells post-drawdown; however, the Groundwater Well Management Plan (Appendix N of the Definite Plan) will mitigate all potential for supply impairments. The EIS should expand upon this conclusion and be specific with respect to impacts and mitigation measures for community water supplies. The City of Yreka and communities of Hornbrook, Copco Village, and Beswick, among many others, rely on groundwater and surface water supply from the Klamath River. The EIS should demonstrate how adequate supply would still be available, given the storage and groundwater recharge that the reservoirs currently provide and that would be lost with dam removal.

APPENDIX H: UNITED STATES FISH AND WILDLIFE SERVICE BIOLOGICAL OPINION FOR THE LOWER KLAMATH DECOMMISSIONING PROJECT

SWCA®
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

51 West Dayton Street
Pasadena, California 91105
Tel 626.240.0587 Fax 626.240.0607
www.swca.com

Siskiyou County Comments on the U.S. Fish and Wildlife Service Biological Opinion for the Lower Klamath Decommissioning Project.

The U.S. Fish and Wildlife Service (USFWS) states that, regarding genetic differentiation among the Klamath sucker species, there are potentially thousands of genetic markers for species and population differentiation that could be conserved to enhance recovery efforts for Lost River suckers and shortnose suckers, citing Smith et al. 2020. However, we have reviewed that report and determined that it shows that there is strong genetic similarity between Klamath largescale and shortnose suckers that has not been resolved. We also determined that the report does not allude to potential contributions to enhancing recovery efforts.

USFWS states that Lost River and shortnose suckers will be captured prior to reservoir drawdown and transported to the Klamath Tribes' sucker rearing facility, but there is no indication as to what will happen with these fish or if the fish will survive the effort to translocate them to an artificial rearing facility. The USFWS anticipates about 600 suckers will be translocated.

The range-wide distribution of the Upper Klamath Lake (UKL) population of Lost River and shortnose suckers includes UKL down to the mouth of the Klamath River. The USFWS status review states that a substantial reduction in the number of Lost River suckers in the UKL would put the Lost River sucker close to extinction and that the shortnose sucker could become extinct within the next 30 to 40 years. Recognizing the dire outlook for these two unique species, which do not occur anywhere else on the planet, USFWS is taking a position that would allow for the complete loss of these two sucker species that are known to exist in J.C. Boyle Reservoir, as well as the loss of the shortnose sucker in Copco and Iron Gate Reservoirs that could aid in conservation of these fish. The USFWS has identified the lower river populations as a sink population to allow for the destruction of their habitat to make way for salmon passage that has questionable chance of successfully reestablishing in the upper Klamath River.

USFWS states that "landscape-scale improvements that reduce nutrient loads in UKL are necessary to achieve full recovery of both sucker species." However, elimination of the dams located below UKL will not resolve that issue, suggesting certain doom for these species regardless of any efforts listed as conservation measures.

The USFWS states that the Lost River suckers and shortnose suckers that exist in the Klamath River Management Unit (the flowing water or reservoirs between Keno Dam and Iron Gate Dam) are considered sink populations because they are "not able to re-access the three upstream management units and interact with the populations in Lake Ewauna/Keno Reservoir or Upper Klamath Lake." The USFWS goes on to declare that there is no connectivity with upstream populations because of both the steep channel gradient in the river between J.C. Boyle and Keno Dam and the lack of fish passage for suckers at Keno Dam. However, this finding has not been backed up with data. The USFWS, in fact, admits that they have no documentation or evidence that shortnose or Lost River suckers spawn in the J.C. Boyle peaking reach even though "unknown" suckers have been observed there. It seems it would be prudent to determine with certainty that the suckers residing in the Klamath River Management Unit are not viable rather than assume and risk losing a potential metapopulation that could bolster the effort to protect and restore the two populations of endangered suckers. Instead, the USFWS believes the best action is to

attempt to capture and relocate suckers in the Klamath River Management Unit. The USFWS's Opinion identifies that shortnose, Klamath smallscale, Klamath largescale, and Lost River sucker have been observed or captured in the J.C. Boyle and Copco No. 1 Reservoirs and that 'unidentified' sucker larvae have been observed or captured in Iron Gate Reservoir. Klamath sucker larvae are difficult to identify and must be reared to the juvenile stage of development before they can be positively identified. However, it is not appropriate to assume these larvae are not one of the endangered sucker species.

The USFWS estimates 500 adult shortnose suckers reside in the J.C. Boyle Reservoir, 2,000 adult shortnose suckers and Lost River suckers reside in Copco No. 1 Reservoir, and 200 adult suckers reside in Iron Gate Reservoir. Therefore, endangered suckers are present in the Klamath River Management Unit and should be treated according to Endangered Species Act precautionary principles.

In recent population estimates (2018–2020), sampling captured 5 'potential' hybrid suckers in J.C. Boyle Reservoir, 96 shortnose suckers, 1 Lost River sucker, and 2 'potential' hybrids in Copco No. 1 Reservoir. Fifteen of the shortnose suckers captured in 2020 were less than 15 inches, suggesting a cohort of younger suckers that were not sampled during 2018 and 2019. Sampling efforts in Iron Gate Reservoir captured 25 adult shortnose suckers and 5 'potential' hybrids. There is no indication as to why some of the fish were identified as hybrids and what, if anything, was done to further identify them. A non-parametric bootstrap method estimated that a total of 5,540 adult listed suckers reside in the Klamath Hydroelectric Reach, and all are at risk of extermination when the dams are removed. In addition, an estimated 365,229 larvae and 2,825 juvenile suckers reside in the Klamath Hydroelectric Reach. The USFWS claims these larvae and juvenile suckers are drift from Keno Dam but does not provide scientific proof that this has occurred.

The USFWS makes an interesting declaration in the Incidental Take Permit for the Klamath Habitat Conservation Plan: "Were it not for the reservoirs that are part of the Klamath Hydropower Project, habitat for the Lost River Sucker and shortnose sucker would likely not exist below Keno Dam." So why does it make sense to the Service to destroy that habitat as it exists today? To quote the USFWS's Effects analysis, "…all Lost River and shortnose suckers in the reservoirs of any life stage, will experience a range of insignificant, discountable, or adverse effects during capture and translocation. During the drawdown and dam removal phase, any individuals remaining in the reservoirs and the Klamath River will die."

LITERATURE CITED

National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS). 2021. Formal consultation for the surrender and decommissioning of the Lower Klamath Hydroelectric Project No. 14803-001. Klamath County, Oregon and Siskiyou County, California. December 17, 2021.

Smith, M., J. Von Bargen, C. Smith, M. Miller, J. Rasmussen, and D.A. Hewitt. 2020. Characterization of the genetic structure of four sucker species in Klamath River. Final Report. U.S. Fish and Wildlife Service. 34 pp.